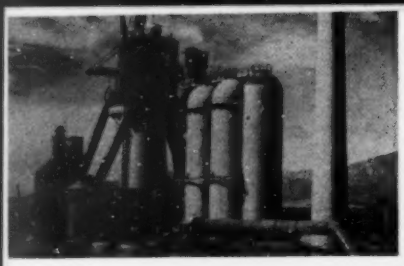
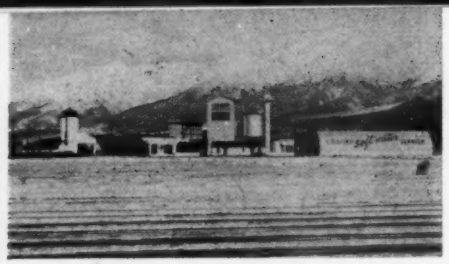
TELEPHONE ENGINEER and MANAGEMENT

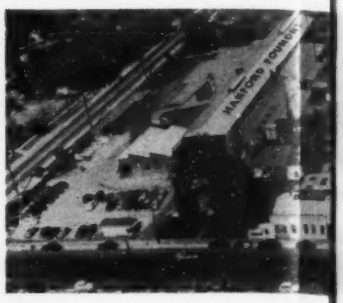
JULY, 1949





San Bernardino

INDUSTRIAL GATEWAY TO SOUTHERN California



SINCE THE DAYS of the wagon trains the geography of Southern California has placed San Bernardino in a strategic position. Today, the San Gorgonio Pass routes three major railroads and two major highways, which lead into Southern California, through San Bernardino. Thus, in fact, San Bernardino is the industrial gateway to Southern California.

All materials and machines for industry do not pass *through* San Bernardino, however, for the city itself is a major factor in the constantly increasing southland industrial empire. The famous Kaiser Steel Plant, the Hanford Foundry, the Culligan Zeolite Plant—three important Southern California industrial installations—are located in San Bernardino. In addition, the city is the West Coast "Marshalling Yard" for freight train movement east and west on the Santa Fe System. Santa Fe Railroad's facilities in San Bernardino include the largest repair shops west of the Rockies.

Not all emphasis is put on work in San Bernardino, for within a radius of 70 miles there are located famous Southern California resort attractions such as Palm Springs, Laguna Beach, Lake Arrowhead and countless others.

It is fitting that San Bernardino, "The Industrial Gateway to Southern California," should have telephone directories published according to our Complete Directory Service Plan, "*The Gateway to Increased Advertising Revenue and Maintenance of Favorable Subscriber Relations.*" For a number of years General Telephone Directory Company has been employed by the Associated Telephone Company, Ltd., to publish telephone directories for the San Bernardino area. The results produced by applying our Complete Directory Service Plan to the publication of the San Bernardino directory have been proportionately the same as those we have attained in the More Than 1200 Other Cities and Towns for which we publish directories. This is further evidence that our flexible Plan can be adapted successfully and profitably to fit the needs of telephone companies across the nation.

We would be pleased to have an opportunity to show you how our Complete Directory Service Plan can increase your advertising revenue and maintain favorable relations with your subscribers; while at the same time eliminating much of the detail ordinarily associated with directory publication.

GENERAL TELEPHONE DIRECTORY COMPANY

EASTERN OFFICES
185 North Wabash Avenue, Chicago 1, Illinois • Telephone—STate 2-5478
G. Daniel Baldwin Building, Erie, Pennsylvania • Telephone 2-4187
420 Columbia Street, LaFayette, Indiana • Telephone 4854
Washington Building, Madison, Wisconsin • Telephone—Fairchild 6026

WESTERN OFFICES
604 Pine Avenue, Long Beach 12, California • Telephone 6-7211
1220½ Texas Avenue, Lubbock, Texas • Telephone 2-6230
Peyton Building, Spokane, Washington • Telephone—Main 9-4[illegible]

GOULD Floté -

ONLY

LABORATORY AND CUSTOMER-TESTED

FOR 14 YEARS

GOULD

STORAGE BATTERIES CORPORATION

TRENTON 7, NEW JERSEY

Gould Floté Batteries are designed specifically for full float service, require less current to maintain full capacity, give long, dependable life . . . have been customer-tested for 14 years!

IT SEEMS TO US . . .

From LES GRITTEN'S Oregon Association Newsletter we learn that praise for American inventors who made radio possible—may be off the track. LLOYD WALLGREN, purchasing agent for West Coast Telephone Co., who is a radio "ham" recently contacted a short-wave station in Swerdiovsk, a city in mid-Siberia. He received a "Q.S.L." card of acknowledgment. This card shows a colored picture of "A. S. POPOW, INVENTOR OF RADIO, MAY 7, 1895"—After learning of Wallgren's experience Les commented that, "It only remains for the Kremlin to claim the credit for the invention of childbirth."

• • •

The "Gay Nineties" of the Cleveland Telephone Co. recently bloomed again as JOHN P. BOYLAN, chairman of the board of Rochester (N.Y.) Telephone Co., and author of the popular "Tales of the '90's" stories for TELEPHONE ENGINEER pulications, re-told tales of that era to his early associates during a special meeting of the Cleveland Life Member hour. John met many of his old friends, and recalled with the skill of a master storyteller, the pranks, comradship and aggressive ingenuity of the telephone's early days.

• • •

Volume designed to serve as catalog for all manufacturers serving telephone industry has been mailed to EVERY telephone company in Western Hemisphere and to subscribers of TELEPHONE ENGINEER in foreign countries. This volume, THE 1949 COMPOSITE CATALOG & BUYERS' DIRECTORY, has been sent to you at no charge and with compliments of our Staff and co-operating manufacturers featured in Catalog. One complete section is Composite Catalog with manufacturers' offerings listed in alphabetical order. Valuable statistical material plus Questions and Answers Handbook will make this volume necessary in every library. We are anxious to have your comments and will appreciate your letters.

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

JULY, 1949 **VOL. 53, NUMBER 7**

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
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FRONT COVER: "Man, Mouse and Cable." The man is veteran New Jersey Bell Splicer Fred C. Stegmuller. The cable is a new 1212-pair exchange job in Springfield, N. J. The mouse is that tiny white object hanging just over the splice. Should the mouse turn black, Fred will know that gas had seeped into the manhole and he would get out—but fast. The mouse, which consists of a white cotton pellet, impregnated with a carbon monoxide sensitive chemical, is one of numerous safety devices used to prevent accidents in manholes.—(Courtesy New Jersey Bell.)

Published monthly by TELEPHONE ENGINEER Publishing Corporation
7720 Sheridan Road - Phone Rogers Park 4-3040 - Chicago 26, Illinois

West Coast Representatives, BRAND & BRAND
1052 West 6th Street, Los Angeles, California

Copyright 1949 by Telephone Engineer Publ. Corp.

VOLUME 53, NUMBER 7. Published monthly by Telephone Engineer Publishing Corporation. Office of Publication, Pontiac, Illinois. Executive and Editorial Office, 7720 Sheridan Road, Chicago, Illinois. Subscriptions: U. S., Cuba, Mexico, $2.00 per year; Canada $2.50; in all other countries, $4.00. Single copies, U.S.A. 20 cents. Entered as second class matter at the post office at Pontiac, Illinois, under the act of March 3, 1879.

Sherron Announces Price Reduction

ALL STEEL ACOUSTIC TELEPHONE BOOTH

now $195

MODEL 18S — TYPE 1

All Metal Rigid Construction

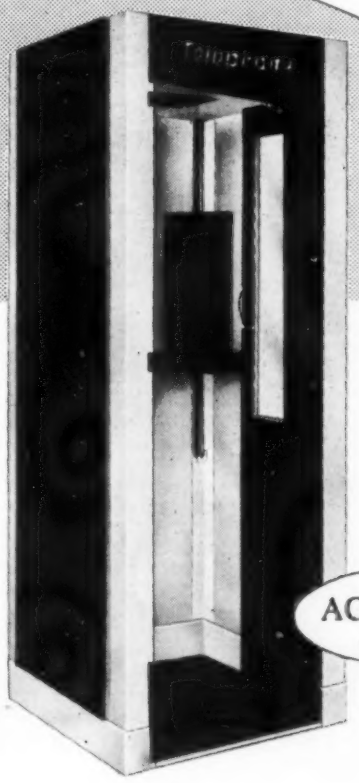
Adjustable Shelf and Backboard

Linoleum Covered Steel Floor

Improved Door Hinges Prevent Sticking and Creaking

Improved Electric Ventilating Unit

Automatic Noiseless Door Switch Controls Ceiling Light



Economies effected through price adjustments in steel combined with our own improved tooling methods enable us to bring down the price of our all steel booth to a new low price of $195. This is the same famous acoustic Sherron booth that has set the pace for telephone booth beauty and serviceability. Write for full details.

SHERRON METALLIC CORPORATION

1201 FLUSHING AVE. • BROOKLYN 6, N.Y.

ALPHADUCT WIRES
For All TELEPHONE REQUIREMENTS

LONG LIFE

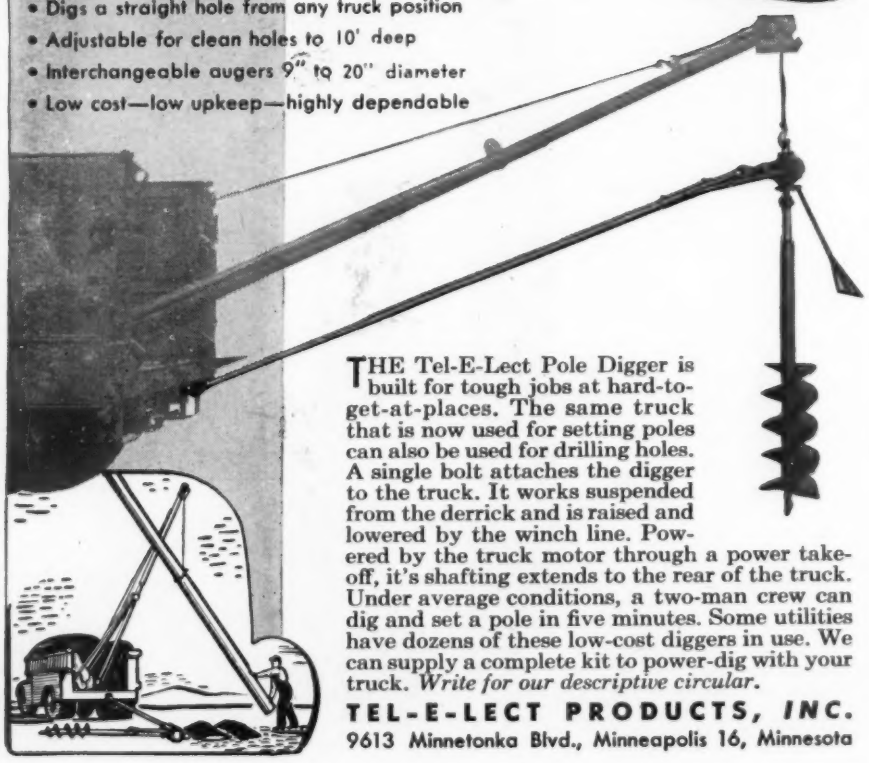
Neoprene Jacketed
Drop and Bridle Wire

Weatherproof Braided Drop and Bridle
Interior - Tree - Ground - Switchboard -
Pothead - Cable Terminal - Instrument

Manufactured and Tested to Rigid Specifications
ALPHADUCT WIRE & CABLE CO.
Millstone Point, New Jersey Telephone: Millstone 2-0830

DIG HOLES WITH YOUR LINE TRUCK AND CREW
TEL-E-LECT POLE HOLE DIGGER

- Digs a straight hole from any truck position
- Adjustable for clean holes to 10' deep
- Interchangeable augers 9" to 20" diameter
- Low cost—low upkeep—highly dependable



THE Tel-E-Lect Pole Digger is built for tough jobs at hard-to-get-at-places. The same truck that is now used for setting poles can also be used for drilling holes. A single bolt attaches the digger to the truck. It works suspended from the derrick and is raised and lowered by the winch line. Powered by the truck motor through a power take-off, it's shafting extends to the rear of the truck. Under average conditions, a two-man crew can dig and set a pole in five minutes. Some utilities have dozens of these low-cost diggers in use. We can supply a complete kit to power-dig with your truck. *Write for our descriptive circular.*

TEL-E-LECT PRODUCTS, INC.
9613 Minnetonka Blvd., Minneapolis 16, Minnesota

ON OUR *Party Line*

Torrid Talkers . . .

STORIES about telephone conversations peppered with profanity have been turning up in the news lately. One concerned a leather-tongued New Yorker charged with disorderly conduct by the party on the other end of the wire. Lucky for him, the judge ruled that since telephone conversations aren't public in nature, the public peace hadn't been disturbed. Then a Washington, D. C., storeowner reported on how he censored the vocabulary of customers using the pay phone in his store by pasting a copy of the Lord's Prayer in the booth.

Highway to Hong Kong . . .

FROM ANY point in the U. S. you can now "electrically talk" —as the Chinese call our word telephone—to a relative, friend or business colleague on the island of Hong Kong. Long Lines opened radiotelephone service from this British Crown Colony, which lies off the southern coast of China, for the first time on June 8.

Commenting on this opening, an editorial of the N. Y. *Herald Tribune* declared, "Eighty-five countries are connected by telephone; almost literally there is no point on earth beyond the reach of human voice. In a very real sense, the workaday telephone shows how man's machines have outstripped man's own efforts at unity."

Modern Magic . . .

IT USED to be quite an experience when you had put through a long distance call to your Aunt Lulu out in Aurora, Ill., Western Electric's "GHQ" magazine recalls that it hasn't been too many years since the day when you gave the long distance operator information necessary to get Aunt Lulu on the phone, and then settled yourself for five or ten minutes of doodling while the call went through. Besides this, Aunt Lulu was probably a windy old gal who could yackety-yack away three or four dollars worth of long distance time before you could get her stopped.

The telephone industry hasn't been

(*Please turn to page* 8)

GENUINE *Ironite* DROP WIRE

Genuine Ironite, that old dependable iron conductor drop wire, now comes to you new—really new—in every respect. It is years ahead in conductor and insulation.

Conductor is strong—extra strong—up to 250 lbs. breaking test on No. 18; protected by the modern process galvanizing—"flozine"—that provides a perfect, unbroken sheath.

Insulation is a new process rubber which clings to the conductor, maintains its flexibility and has long life. Protected by a new type of combined cotton and mineral fiber braid, stearine pitch and powdered mica finish (U.R.C. Specification).

And with all this superiority this *new* Genuine Ironite is priced so that limited budgets are easily met. Available in either twisted or parallel pair. Write for price bulletin No. 11.

PARAGON H. T. BRONZE DROP WIRE

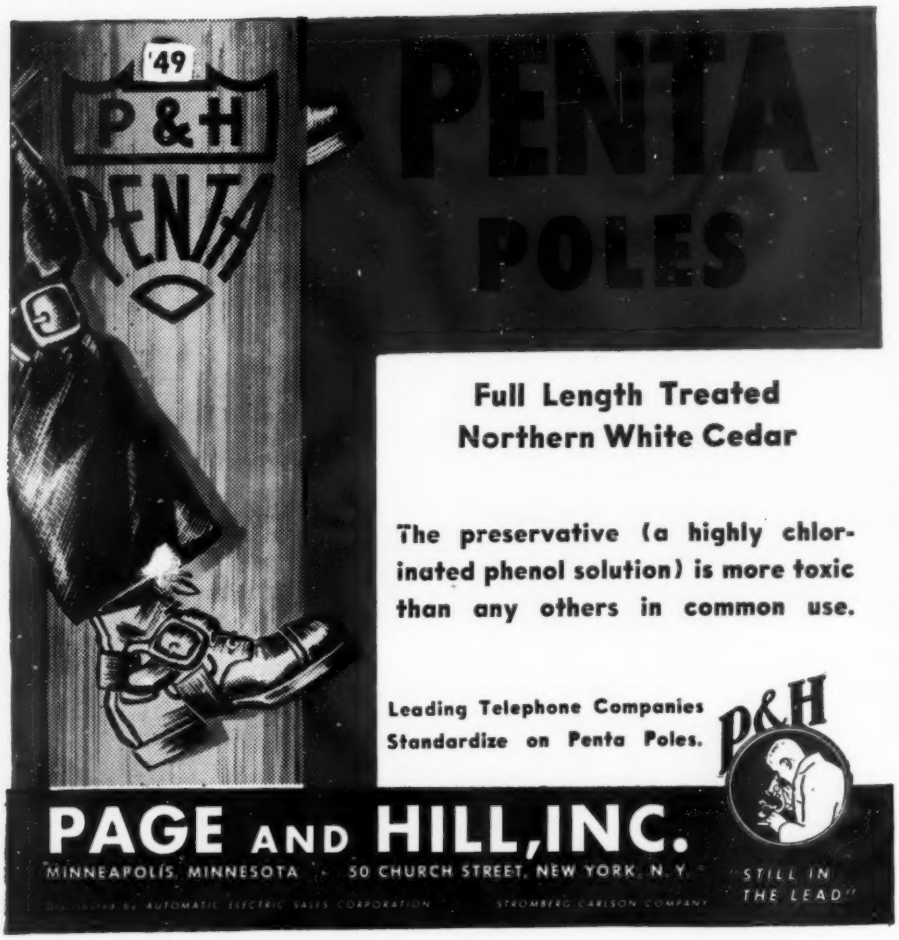
A new Bronze conductor Drop Wire, meets every demand for a super quality "drop". Strong and ductile.

Available in Paragon rubber and braid insulation or in Paraprene insulation, in twisted or parallel pair. Write for price bulletin No. 12.

TELEPHONE DIVISION

Paragon Electric Company

TWO RIVERS, WISCONSIN


'49
P&H
PENTA
PENTA
POLES
Full Length Treated
Northern White Cedar
The preservative (a highly chlorinated phenol solution) is more toxic than any others in common use.
Leading Telephone Companies Standardize on Penta Poles.
P&H
PAGE AND HILL, INC.
MINNEAPOLIS, MINNESOTA · 50 CHURCH STREET, NEW YORK, N. Y.
"STILL IN THE LEAD"

Without Damage to Insulation—with

KEARNEY SNUB-R-GRIPS

This effective drop wire grip has amazing holding power through snubbing action, yet it does not damage the insulation. It's easy to take up or pay out slack after the grip has been installed by inching the wire through the grooved spiral. Snub-R-Grips are easily installed or removed.

JAMES R. KEARNEY CORPORATION ST. LOUIS, MO.

For complete information and prices, see your regular jobber or write —

JAMES R. KEARNEY CORPORATION
4236 CLAYTON AVE. • ST. LOUIS 10, MO.
Overhead and Underground Utility Equipment

able to do much about Aunt Lulu's garrulity, but it has been doing something about that five or ten minutes you used to spend doodling while your call went through. Steadily over the years dial equipment and other improvements have been introduced to trim that time down. Since the end of the war the waiting time has been whittled away even further with the introduction of operator toll dialing, so that today it requires only one minute to complete the same call to Aunt Lulu that it would have taken 14 minutes to place in 1920. This same sort of speedy service now reaches out to some 300 cities in the country, and about 10 per cent of all long distance traffic is handled by this quick, efficient method.

To the ordinary observer it must look like black magic—something that telephone engineers and scientists reached in and pulled out of the hat. Actually, the story behind operator toll dialing has nothing to do with magic but is a record of hard work and systematic planning.

A Matter of Timing . . .

AFTER YEARS of taking it for granted we suddenly stopped to wonder why toll operators say "I will call you in about 20 minutes" when the distant number doesn't answer. Why not in 15 minutes?

The reason, we discovered, goes back to studies made about 40 years ago. In a number of toll offices in the East and Midwest, facts and figures were gathered on what happened when operators called back on 'don't answer' numbers at intervals ranging from five minutes to half an hour. When the results were tallied, 20 minutes had the best all-around score. Of course, longer intervals gave people more time to get back to their phones, but longer waits made more callers think they had to remind 'long distance' to try again.

Traffic people still find the 20-minute wait gets the best results—more calls completed, fewer subscribers convinced they've been forgotten.

Take It Easy . . .

FROM AN 1888 Telephone Directory: "*The Edison Transmitter is furnished with a projecting nickel-plated mouthpiece into which you speak. Place your mouth against the mouthpiece, keeping your mustache out of the opening, and speak as directed. Follow our directions and don't lose your temper.*"

THESE FEATURES MAKE THEM *Reliable*

1. **Trouble-free for the life of the cable.**
2. **Cable is solidly bonded to strand.**
3. **Strong, easy to install, economical.**

Reliable Cable Hangers have been used successfully for more than 35 years in many states.

Reliable

CABLE HANGERS

These features of the Reliable Cable Hangers bring you benefits of permanent value. No sheath cuts—no replacement of rings—no expensive equipment needed. Cable movement is eliminated; "creeping" and "snaking" is minimized. Added protection is afforded against lightning. Where the cable consists of separate insulated conductors held together against the messenger, Reliable Cable Hangers reduce the wear of wind whipping.

TWO TYPES

Reliable Cable Hangers are available in both Zinc and Copper, in Nos. 1 to 8 for cables ½" to 2⅞" diameter. ZINC—for supporting lead covered cable or insulated conductors to galvanized steel strand. COPPER—for supporting insulated wires or cable to copperweld and bronze strand. Specify RELIABLE and—as always—you get these Reliable features.

Write for new Bulletin CS.

Reliable

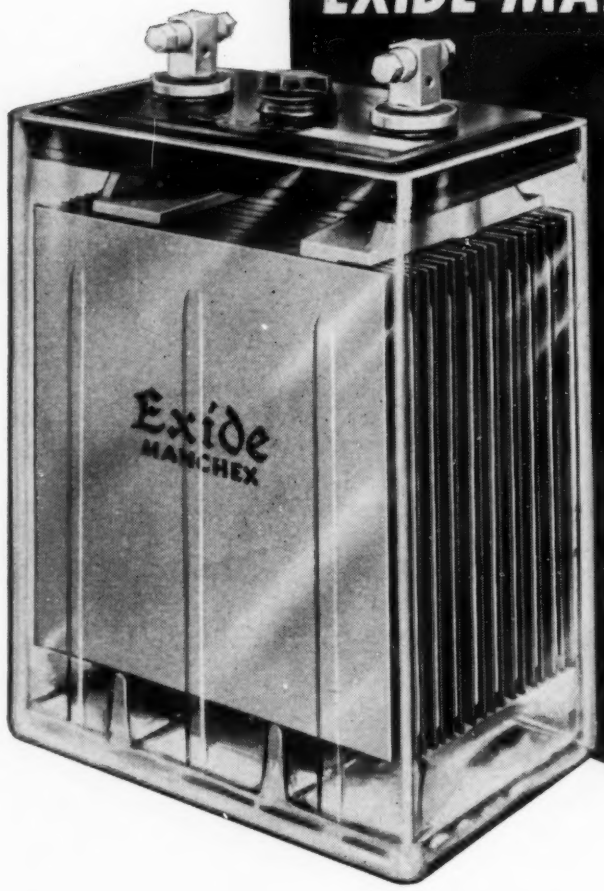
ELECTRIC COMPANY

3145 CARROLL AVENUE • CHICAGO 12, ILLINOIS

OVER 40 YEARS' *Service* TO THE TELEPHONE INDUSTRY

The NEW EXIDE-MANCHEX BATTERY

for dependability and long life in TELEPHONE SERVICE



An important feature of the new Exide-Manchex Battery is the famous manchester positive plate with its unique lead button construction. The buttons, rolled strips of corrugated lead, are pressed into holes of the lead-antimony grid. Forming action expands the buttons and locks them securely in place. Only a comparatively small portion of the total lead is formed initially into active material . . . the remainder is available for gradual conversion in service.

Negative plates, separators and other elements are designed to match the long life and efficiency of the positive plates. All combine to provide a battery of exceptional power and long-lasting, trouble-free performance.

Use Exide-Manchex Batteries for all stationary requirements — common battery, emergency reserve, signaling, PBX and other applications. Their use is assurance of dependability, long life and low cost maintenance.

"Exide" *Reg. Trade-mark U. S. Pat. Off.*

Exide
BATTERIES

1888 . . . DEPENDABLE BATTERIES FOR 61 YEARS . . . 1949

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

July 15, 1949

Dear Sir:

Michigan Bell Tel. Co. granted an increase expected to add $4,800,000 to annual revenue. Company had asked for overall annual raise of $20,000,000 of which $9,800,000 was sought as emergency relief. Remaining $5,000,000 in emergency relief and $10,200,000 additional relief remain before commission for consideration. Rate boost will lift investment returns to 5.3%, commission said.

* * *

Private utility industry may have opportunity to test constitutionality of government's right to transmit, distribute and sell electricity in competition with privately-owned light & power companies. Public Service Co. of Colorado claims that opportunity for test case has been provided by the U. S. Reclamation Bureau in its recent suit in Denver federal court, naming Denver utility among eight defendants. Although government's suit was brought for purpose of obtaining court judgment on question of water rights on Colorado River, utility in its answer has raised question of constitutionality of bureau's plans for building duplicating power lines in its service area.

Counsel for the utility company assert that constitutional question is pertinent to Reclamation Bureau's case, & predicts that question ultimately will be decided by U. S. Supreme Court. Suit seeks interpretation of Senate Document 80, passed by 75th Congress, authorizing the project. On this point, Public Service Co. has insisted on court review of right of government agency to engage in proprietary function under guise of exercise of governmental function authorized or permitted by the Constitution.

* * *

Washington observers report social security planners are agreed on letting payroll taxes treble in 15 years. They also want old age insurance coverage extended to 12 million more persons. House Ways & Means Committee members are said to have agreed on legislation which would: Raise to 2½% in 1960 and 3% in 1965 tax against employes' pay & employers' payrolls; extend coverage to self-employed; boost benefits, probably by more than 50%; add disability benefit so that totally disabled would receive same benefits they would at age 65 or over.

* * *

Proposal of FCC, made with issuance of May 3 rules and regulations for mobile radio telephone services, that priority categories be set up for mobile telephone facilities of Bell System companies in such a way that present subscribers would have to give way to applicants in a higher bracket of priority scale, met with objections of American Tel. & Tel. Co. in recent statement filed with commission.

In addition, A. T. & T. also objected to priority scale being set up as rule of FCC, declaring that in essence commission "is attempting to employ its rule-making power under Section 303 (r) of the Communications Act as a substitute for regulation by state authorities and in lieu of its

own regulatory authority under other sections of the Act."

Objecting to "take away" provision in proposed rules, A. T. & T. said such a move "would cause inconvenience and expense and in many instances would result in hardship to existing subscribers." It was pointed out that "these subscribers have incurred substantial expense in providing generators and batteries, altering the structure of vehicles to accommodate mobile radio equipment and paying necessary installation charges."

Statement of A. T. & T. submitted that "a fairer and more equitable application of precedence categories can be obtained through voluntary discontinuance of existing services and normal growth of facilities, rather than through the mandatory 'take away' procedure. This not only would be in accord with the customary method of dealing with temporary shortages, but would be consistent with the commission's ruling in regard to allocations requiring non-experimental licensees to shift frequencies at a future date."

* * *

Information compiled by Mountain States Tel. & Tel. Co. for Independent telephone companies operating in Mountain States area shows rapid strides made during last few years in the Independent field. At end of 1948 there were 220 Independent companies in area operating 250 exchanges, owning over 20,600 miles of exchange wire & cable, & 17,000 miles of toll wire. Number of telephones served by Independent companies in Mountain States has almost doubled since 1939, increasing from 25,700 telephones to 46,900 telephones at end of 1948.

* * *

Pennsylvania Public Utilities Commission dismissed complaint filed by Pennsylvania Hotels Assn. against Bell Tel. Co. of Pa. Commission held that contract between telephone company & hotel, fixing commission payable to hotel on charges collected for telephone calls did not fall within statutory definition of rate so as to require contract to be filed as part of telephone company's tariff. Commission ruled that contract makes hotel a collection agent.

* * *

Highlights: Central Carolina Tel. Co. completed cutover of Hampton, S. C. to automatic operation. . . Hugh W. Abbett appointed chairman Indiana Public Service Commission; succeeds Roscoe O'Bryne who resigned due to ill health. . . Ozark Central Tel. Co. constructing new toll lines from Freeburg to Meta, Mo. . . Western Light & Tel. Co., Kansas City, Mo., requested authority to amend its by-laws to permit $2¼ million increase in authorized capital.

Southwestern States Tel. Co. will convert Rector, Ark. exchange to automatic operation. . . Charles Barklow, mgr. Pacific, Mo. exchange of Ozark Central Tel. Co., retired after 27 years service. . . Lucas Tel. Co., Burke, S. D. constructing 65 miles of pole line; new company will serve 75 rural subscribers. . . Luzerne Tel. Co. to convert, Benton, Pa. to automatic operation. . . Walnut (Neb.) Tel. Co. purchased properties of Walnut Grove Tel. Co., Venus, Neb.

Died: John S. Allen, president of North-West Telephone Co., Tomah, Wis.

Ray Smith

Ray W. Smith, Editor

THE TELEPHONE THAT MEETS EVERY TOP REQUIREMENT FOR MAGNETO SERVICE

Federal's 804-A
MAGNETO
CONVERTIBLE
TELEPHONE

for desk use

for wall mounting

EXAMINE IT . . . TEST IT . . . USE IT — *Prove it!*

- **EASILY CONVERTIBLE**—for either desk or wall mounting.
- **COMPACT**—Space saving. Easier to stock, install and service.
- **SILENT**—A tapped resistor is provided to adjust the side tone to match loop resistance.
- **STURDY**—Built to withstand long vigorous service under all operating conditions and climates.

IMMEDIATE DELIVERY
ADVANTAGEOUSLY PRICED

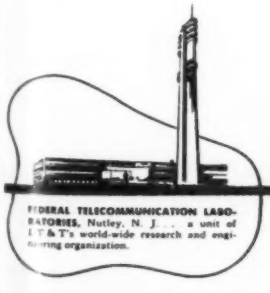
MODERN STYLING gives your rural subscribers the satisfaction of having a telephone of pleasing appearance in the home....

RUGGED CONSTRUCTION and highest quality materials assure long and trouble-free service....

QUALITY TRANSMISSION makes local battery service the equal of any other type—resulting from improved circuit design....

You will find that these and other outstanding features in the Federal 804-A add up to a magneto telephone that can do an important two-way job for you—satisfy your subscribers through improved service, and provide increased operating profit for you through dependable, low-maintenance, top quality operation. It is important to your interests to get complete details on Federal's 804-A. Write today to Telephone Sales Department.

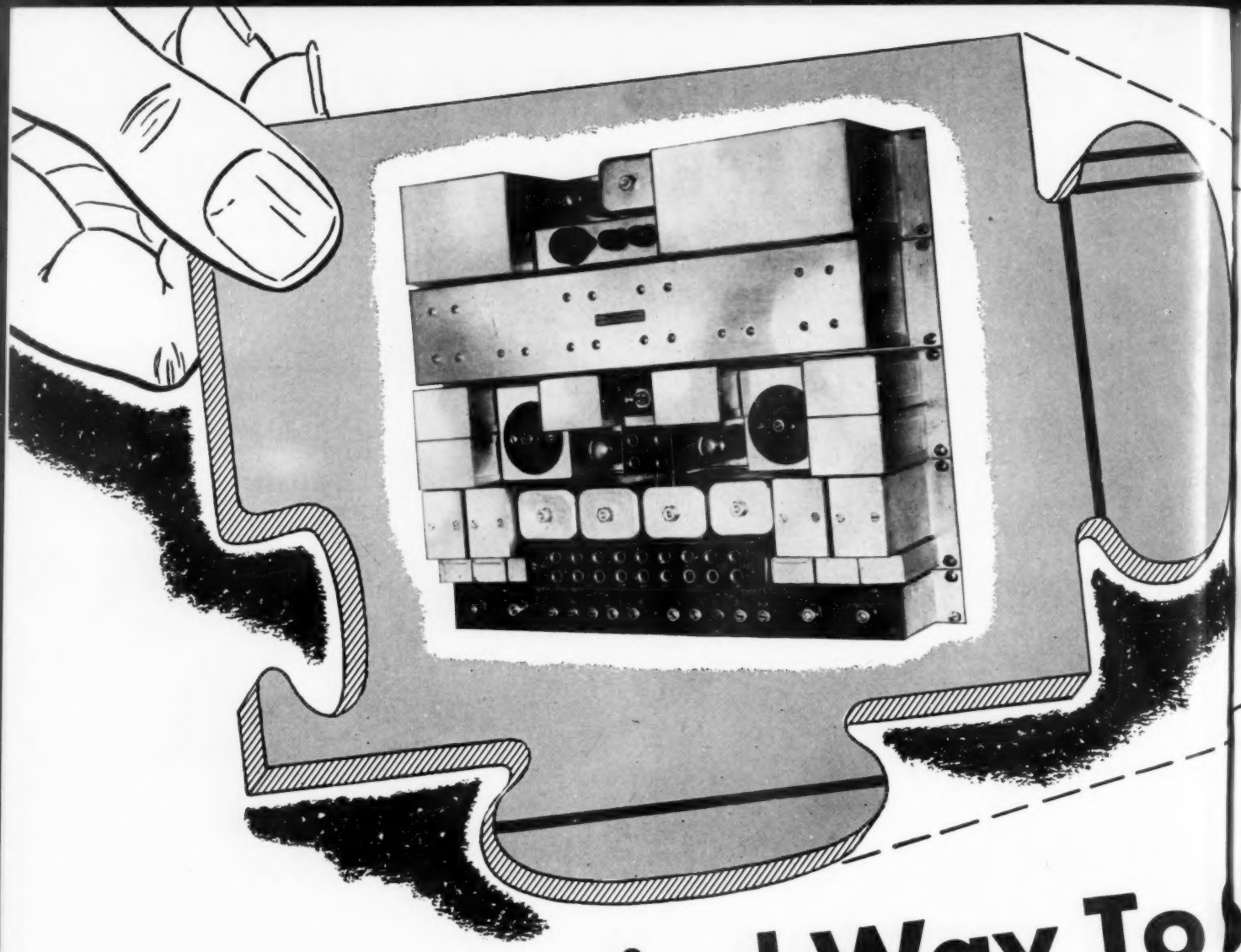
Federal offers attractive delivery dates on its complete line of automatic switching equipment for any size exchange.



FEDERAL TELECOMMUNICATION LABORATORIES, Nutley, N. J. . . . a unit of I. T. & T.'s world-wide research and engineering organization.

Federal Telephone and Radio Corporation

100 KINGSLAND ROAD, CLIFTON, NEW JERSEY
In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.
Export Distributors: International Standard Electric Corp., 67 Broad St., N. Y.



The Economical Way To

See these Advanced Features:

IMPROVED FILTER UNIT: Permits maximum gain on circuits upon which a carrier system is superimposed and on heavily-loaded cable lines.

EASY INSTALLATION AND MAINTENANCE: Stable balance is easy to obtain. An ordinary screwdriver makes all adjustments—no soldering or strapping.

FLEXIBLE CONSTRUCTION: "Unit"-built, to allow quick adaptation to various types of lines and circuits.

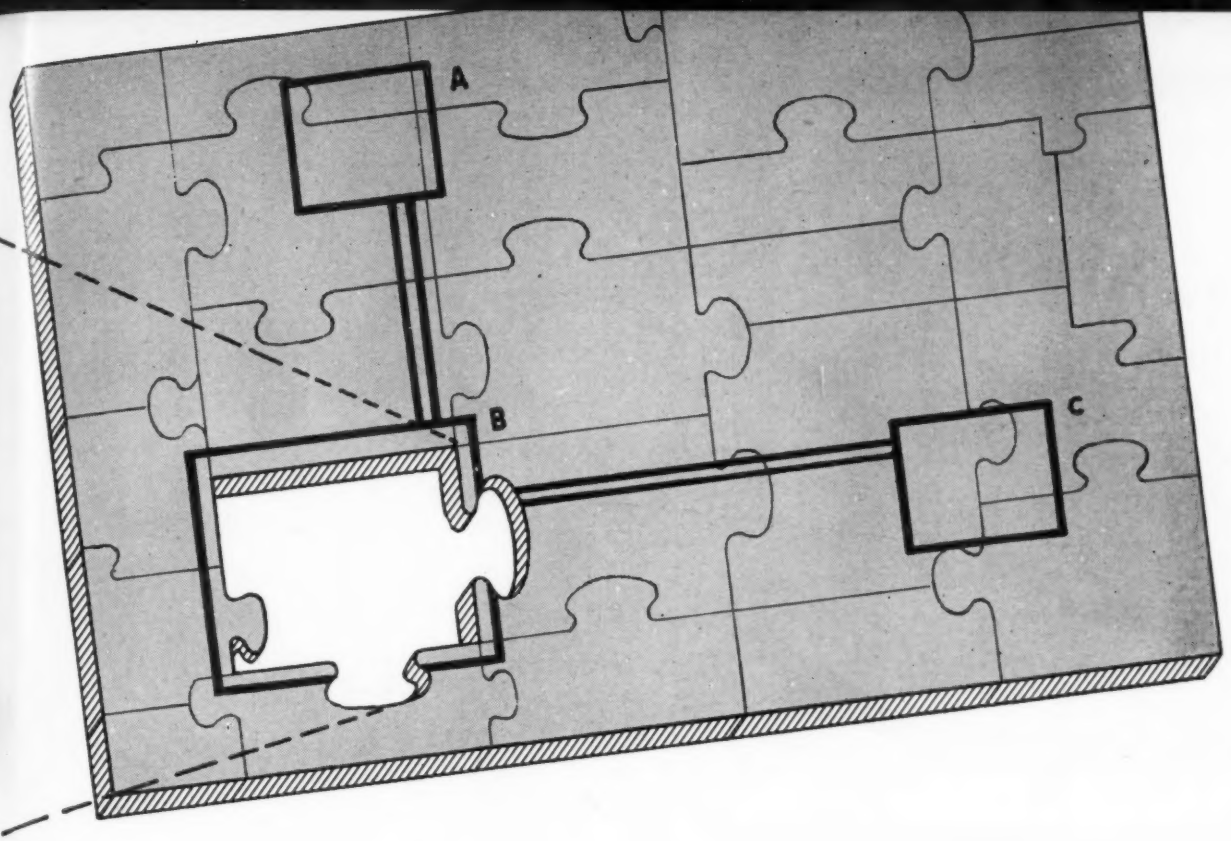
UNINTERRUPTED SERVICE: There's no need to turn down the circuit during maintenance.

KELLOGG SWITCHBOARD AND SUPPLY COMPAN

Established 1897

REPEATER

6650 SOUTH CICERO AVENUE • CHICAGO



olve Transmission Puzzles

—KELLOGG REPEATER

A Kellogg Repeater fits in nicely as the ideal, low-cost solution to many a circuit "puzzle", when transmission level is "below commercial." In the above illustration, for example, the operating company had 40 miles of #12 BB iron wire between exchanges "A" and "B", and 25 miles of #12 BB iron wire between "B" and "C". Then, changing traffic conditions called for a direct through circuit from "A" to "C". The existing wire facilities did not provide acceptable transmission, since the loss was 20 db, and commercial standards call for a 6 db circuit.

One suggested solution was the replacement of the iron wire with .104 copper wire. This would have provided a 4.5 db circuit, but with present-day wire and construction costs would have ranged from $12,000 to $18,000.

The "fitting" solution came with the installation of a Kellogg Repeater at "B". It provided a minimum usable gain of 14 db which resulted in a 6 db circuit . . . under all ordinary weather conditions . . . and at less than 5% of what it would have cost to replace the wire.

NOTICE!

The Kellogg factory and office will be closed for vacation July 18th thru July 29th.

SEND THE COUPON TODAY!

Kellogg Switchboard and Supply Company
6650 So. Cicero Ave., Chicago 38, Ill.

Please send your Repeater Booklet to:

NAME .....

COMPANY .....

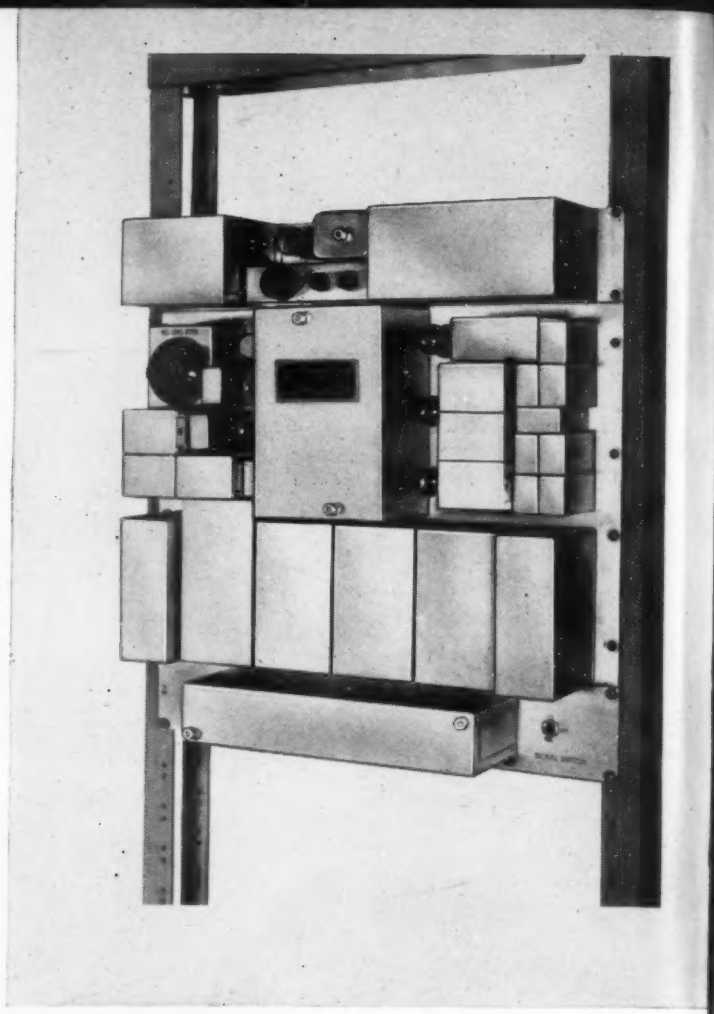
ADDRESS .....

CITY ..... STATE .....

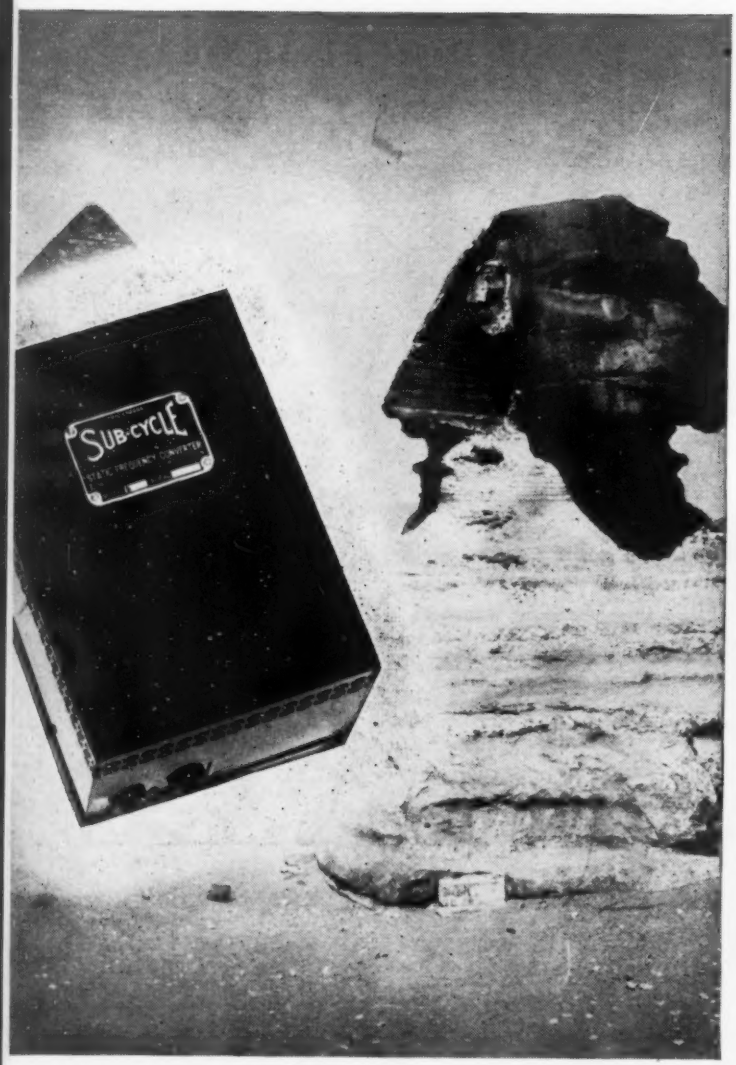
Successful INDEPENDENT TELEPHONE MAN Says:

T. L. LEONARD,
Ozark Central Telephone Co.,
St. Louis, Mo.

"I am always pleased with Kellogg's top-notch service. They help their customers in every way possible."



Saves Construction Costs! Dependable Kellogg Carrier transmits two conversations over a two-wire metallic circuit simultaneously; needs no extra poles or lines. Practically eliminates powerline induction interference. Simple to install and maintain in any toll, rural manual or automatic exchange. Made by KELLOGG SWITCHBOARD & SUPPLY CO.



Durable and Quiet. The Sub-Cycle Master Ringing Converter changes frequency without moving parts because it is a static-type converter. Made by LORAIN PRODUCTS CORP., it gives powerful, dependable, trouble-free ringing current without wear, adjustment or maintenance. Provides close output regulation between no load and full load. In several models.

for EASIER ORDERING PROMPT HANDLING QUICK SHIPMENTS

...send your next order to KELLOGG

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

For Service from a Nearby Distribution Point, Order Your Line Supplies from

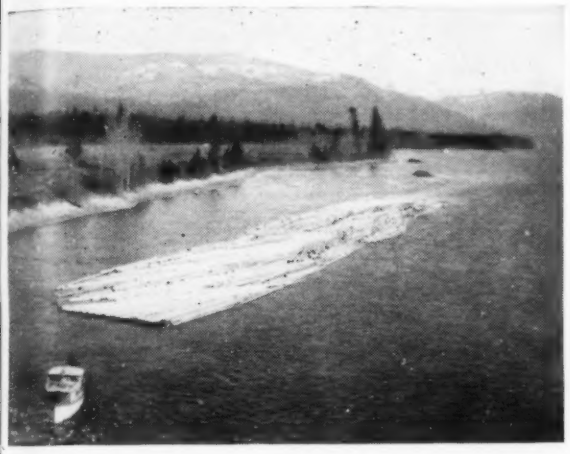
KELLOGG SWITCHBOARD AND SUPPLY COMPANY

SUPPLIES

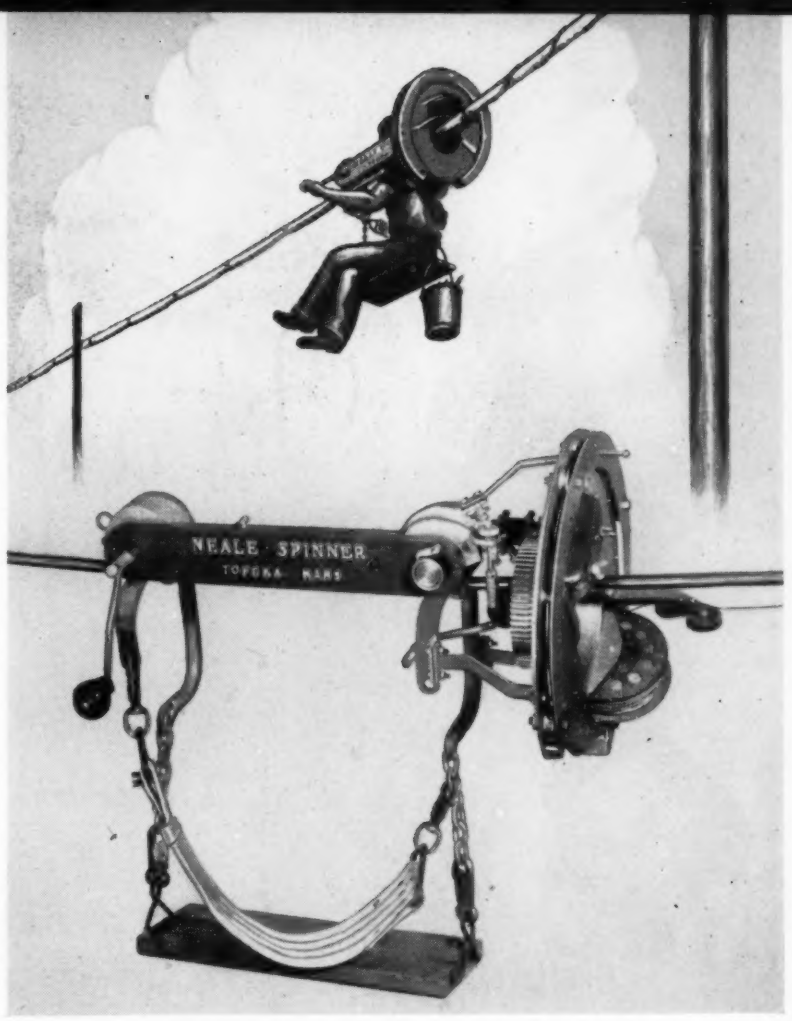
Factory and General Offices: 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL.
Branch Offices: KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FR

Drier Than the Driest Desert! For safe, easy drying of splices in lead-covered cables, sprinkle Drierite Dessicant among the conductors. Drierite granules make splices about the driest part of the cable. This W. A. HAMMOND DRIERITE CO. product won't harm conductors or insulation.

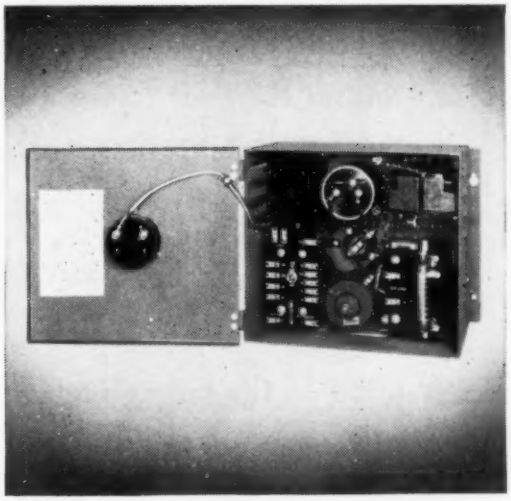


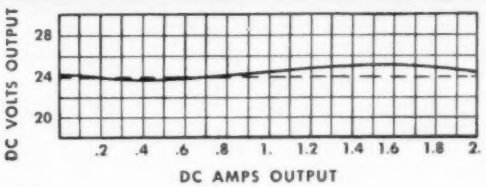
Famous for Strength and Durability, Northern White and Western Red Cedar poles flow toward the MAC GILLIS & GIBBS CO. plants in a steady stream. There they're processed and creosote-treated to insure longer life. Order Mac Gillis & Gibbs poles and watch your replacement costs drop.



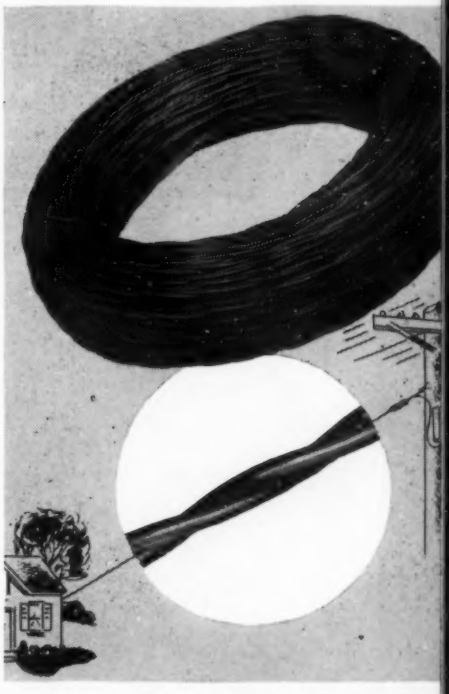
Longer Cable Life and Reduced Maintenance result from spinning with the Neale Model "B" Cable Spinner. Designed expressly for one-man use, it may be operated by a hand crank or pulled along from the ground. Made by CABLE SPINNING EQUIPMENT CO., this spinner's accessories include handy storage chest, seat and safety belt.

liabl . . Economical! "Eveready" "Columbia" Gray Label" telephone dry cells give you ut- ost d pendabiltiy, plus economy thru higher ustain d voltage and extra service life. Made by ATIONAL CARBON CO., INC. Always spec- y them to assure highest operating efficiency.





Steady DC Voltage, required by switchboard lamps and telephones (especially dial), can be assured when you use a RectiFilter. Made by RAYTHEON MANUFACTURING CO., it operates from regular AC source. And with no moving parts to wear, maintenance is low.



Drop Wire Lasts 30% Longer! GENERAL IN SULATED WIRE WORKS Bronze Drop Wir lasts longer because it's drawn of solid, nor corrosive bronze and covered with hard-wea ing Neoprene insulation. You'll find that thi drop wire is flexible and easy to handle.

"It's a pleasure..."

It's a pleasure to use the telephone when service is fast and troubles are few and far between.

It's a pleasure for us to report that the value of telephone service was never greater—that calls are going through faster and more accurately today for more millions of people.

The advertisement on the facing page, appearing in national magazines in July, is a story of progress and a promise of more good things to come.

AN ADVERTISEMENT OF THE BELL TELEPHONE SYSTEM

AMERICAN TELEPHONE & TELEGRAPH CO. AND ASSOCIATED COMPANIES — BELL SYSTEM

TELEPHONE SERVICE KEEPS RIGHT ON IMPROVING

Long Distance is faster. Calls go through on the average in 1.6 minutes—nine times out of ten while you hold the line.

Local Service is better. The operator answers or the dial tone comes on faster than at any time since before the war. Calls go through promptly and accurately.

Equipment troubles are fewer than ever. Those reported by customers have decreased 15% from a year ago.

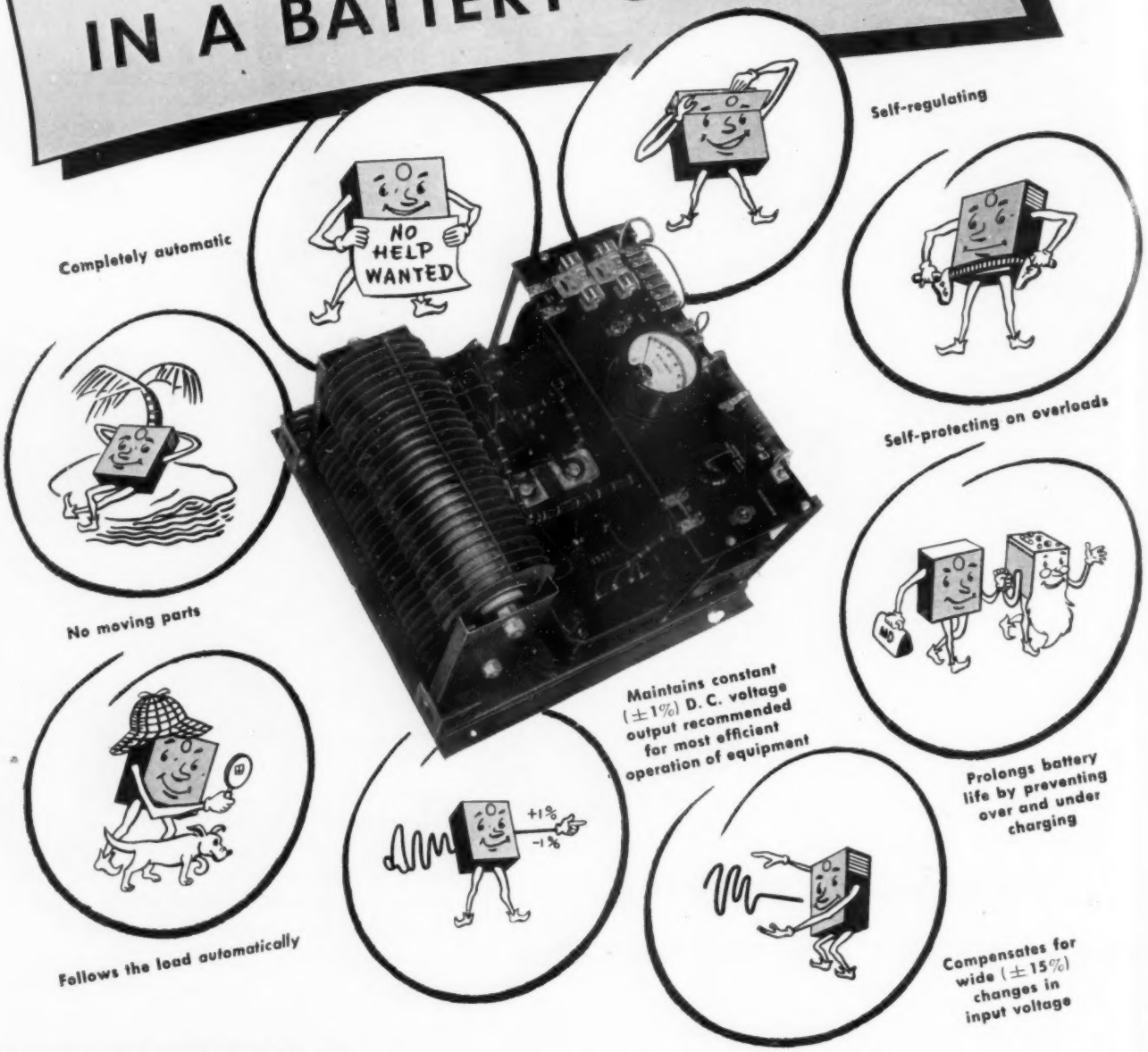
THE big construction program of the Bell System has resulted in important improvements in telephone service, and has brought telephones to millions of people who did not have them before.

Thousands of miles of new Long Distance lines have been added. Many cities are now linked by networks which can carry both voice and television. New and modern Western Electric equipment—the finest that can be made — is giving better, clearer, faster service to millions of telephone users, on every kind of call.

There has never been so great an expansion and improvement in telephone service as in the past three years. Still more good things are ahead for we're keeping right on with the job.

BELL TELEPHONE SYSTEM

Why accept anything less IN A BATTERY CHARGER


NO HELP WANTED
Completely automatic
Self-regulating
Self-protecting on overloads
No moving parts
Maintains constant (±1%) D. C. voltage output recommended for most efficient operation of equipment
Prolongs battery life by preventing over and under charging
Follows the load automatically
+1%
-1%
Compensates for wide (±15%) changes in input voltage

THE RAYTHEON RECTICHARGER

Your regular supplier of telephone equipment has models available to suit your needs and conditions. Call him today for complete information.

RAYTHEON

Excellence in Electronics

RAYTHEON MANUFACTURING COMPANY

WALTHAM 54, MASSACHUSETTS • *WALTHAM 5-5860*

Industrial and Commercial Electronic Equipment, Broadcast Equipment, Tubes and Accessories

SALES OFFICES:

ATLANTA, BOSTON, CHICAGO, CLEVELAND, DETROIT, NEW ORLEANS, NEW YORK, SAN FRANCISCO, SEATTLE, WASHINGTON, D. C., WILMINGTON, CAL.

EXPORT SALES AND SERVICE IN FOREIGN COUNTRIES — Raytheon Manufacturing Company, 50 Broadway, New York 4, N. Y., WH. 3-4980

EDITORIAL

Economic Facts of Life

DURING every major war in which this Republic has participated, there has been a sharp rise in prices and a consequent lowering of the purchasing value of the U. S. dollar. Then, after each war, there has been a period of readjustment during which prices levelled off, but always on a basis higher than prewar.

The length of the readjustment periods of the past may be surpising to many, if you measure them in terms of the settling down of wholesale commodity prices to a fairly stable new level. For instance, the readjustment period following the War of 1812 was ten years. The readjustment period following the Civil War was fourteen years; that following the First World War was also about fourteen years.

The readjustment period following the Second World War started in 1946. The number of years that will be required for it to run its course is anybody's guess. There are important present-day factors that have never before existed in our postwar situations—the "cold war", for instance, and the continued high costs of our military establishments. Also, the cost of the Marshall Plan, continued high taxes, and so on.

It cannot be safely assumed, therefore, that the recent drop in some commodity and some other prices is likely to bring us quickly to what we once knew as "normalcy". We may, and probably do, have a long way yet to go before we reach any positive degree of postwar stability. We may even have another war before we reach it.

The importance of this situation to industry—including the telephone industry—is apparent.

In the telephone business it is unsafe, we think, to assume that decreases in prices that have taken place to date, or that will likely take place in the near future, are sufficient to materially reduce operating expenses. What has happened to date, therefore, or is likely to happen soon, is not sufficient to take the pressure off the need for increased exchange rates in many places.

In that large number of small Independent exchanges where there has been no recent increase in exchange rates, it does not seem possible that any decrease in prices could be sufficient to make their prewar exchange rate basis practicable again. Whatever the new level of prices will finally be, it will certainly be higher than prewar prices.

A large segment of the telephone industry may also have something else to worry about. For some six or seven years past, a large number of companies have been very heavily dependent on their toll revenues to keep them out of the red.

Until December, 1948, statistics issued by the Federal Communications Commission on companies reporting to it, showed toll revenues increasing, practically every month, by 10% or better over the same month of the preceding year. For November, 1948, for instance, the increase over November, 1947 was 11.7%.

But December 1948 showed an increase of only 9.2% over December, 1947. January, 1949, showed an increase over January, 1948 of only 7.4%. And in February, 1949, the increase over February, 1948, was only 3.2%. It seems clear that if this trend continues, there may be actual decreases in toll revenues, as compared with last year. Some companies, we learn, are already experiencing small decreases in tolls.

Happy days aren't here again—at least not yet!

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. . . FOR THE SMALL COMMUNITY

Stromberg-Carlson

Stromberg-Carlson Two-position Non-multiple Switchboard, with flush ends and panels of beautifully matched veneer

*Common Battery

TELEPHONES, SWITCHBOARDS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • SOUND EQUIPMENT

NITXCHANGE THAT WANTS C.B.*

SOLON-MULTIPLE *Switchboards*

IF you think that common battery switchboards are complicated, expensive and hard to maintain, ask your Stromberg-Carlson representative to give you full details (including the low price) on these non-multiple boards. The circuit is simple, the cost compares favorably with magneto equipment, and any small-community serviceman can readily handle the maintenance. You *can* modernize now — for an investment entirely commensurate with your business.

FEATURES OF STROMBERG-CARLSON NON-MULTIPLE BOARDS

- *The two-position board shown is a "stock-production" item—therefore less expensive for you.*
- *All lines are within the reach of either operator—a real advantage at "rest time."*
- *The capacity is 200 local common battery lines per position.*
- *There is also capacity for 30 toll or rural magneto lines, drop ring-down or lamp ring-down, per position.*
- *In each position, space is provided for dial trunks, for satellite Community Dial Offices.*

STROMBERG-CARLSON

Factory, General Offices: Rochester 3, N. Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto

PMENT RONIC CARILLONS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

THE WHITNEY BLAKE BULLETIN

Distributed by Graybar

THE STORY OF TELEPRENE

The "Story of Teleprene" is built up of almost limitless details. We have tried to tell you something of the scope of this story in the foregoing series of ads. We have wanted to give you glimpses of the problems of designing and producing a great drop wire. We also have tried to indicate something of the intensive study that led to the ultimate solution of these problems without going into the almost endless, tedious detail that was actually involved.

You may wonder why we have gone to such trouble to bring you behind the scenes in the wire business. For one thing, we are mighty proud of Teleprene and can't help wanting others to appreciate such an outstanding development. Further, we think it is a fine example of the American system in operation at its best — the result of private research and development directed toward great improvement in performance and long range economy of a product needed by the industry we serve. The result is a wire with many times the life of the old drop wire, the saving to the independent telephone industry of millions of dollars. *The chief reason for giving you such a detailed story is to make it emphatically clear that Teleprene is not simply the same old drop wire with a new overcoat.* It is true that a jacket of a neoprene compound adds much to the performance of the old weatherproof wire. But it took the study and solution of many other problems to give the performance you can have by specifiying Teleprene. From the bare wire to the finished product we have described some of these problems:

Selection of a suitable wire for strength, resistance to corrosion, and fatigue failure — the adoption of signal bronze and Copperweld.

Provision of a lasting barrier between wire and rubber to prevent their interaction — the uniform deposit of chemically pure lead.

Securing of enduring adhesion — so the insulation and wire would not lose their bond even after years of service — the casting aside of organic adhesives in general use and the development of Teleplate.

Development of insulating compound with much greater resistance to deterioration than those that could be made before the newer synthetics were available.

The compounding of neoprene with many other materials to produce a jacket with great weather and abrasion resistance.

Improvement of techniques and equipment so that these new insulating and jacketing materials could be processed by continuous vulcanizing methods.

Whitney Blake has been the one to combine the speed and the accurate centering and uniform cure inherent in the continuous vulcanizing method with the adaptation of extremely tough compounds to this processing method. This has followed from Whitney Blake's pioneering in the development of continuous vulcanizing techniques and explains the Whitney Blake ability to produce at a low price wires and cords that are superior even to those made by much more expensive methods.

The Whitney Blake invention of Teleprene — the original neoprene-jacketed drop wire — is resulting in savings of millions of dollars per year to the independent telephone industry.

DROP WIRE
Bronze and Copperweld conductor for strength

PLUS
Teleplate for lasting adhesion and corrosion resistance

PLUS
Special buna insulation for enduring quality voice transmission

PLUS
Tough neoprene jacket for resistance to wear and weather

EQUALS TELEPRENE

THERE IS ONLY ONE TELEPRENE

Teleprene is not old-fashioned drop wire with an easily extruded neoprene compound in place of the braid.

Teleprene is the result of thousands of experiments in a long, slow development.

TELEPLATE

Teleplate is an exclusive Whitney Blake process which provides a coating of lead over the conductor to prevent corrosion and deterioration of the insulation, then a coating of brass of accurate composition to provide the unexcelled adhesion for which Whitney Blake wires are noted. The difficulties of such a manufacturing operation are enormous, but the result is TELEPLATE, the conductor coating which provides an effective barrier and promotes enduring adhesion.

Reprints of this advertisement are available on request.

THE WHITNEY BLAKE CO., BOX K, HAMDEN, CONN.

Despite continued demands for service many smaller companies realized lower net operating incomes in 1948.

THE MARKETS for NEW CAPITAL

By A. W. Kimber

THE STOCK exchanges have always been places of mystery, and the movements of their share prices have been even more mysterious. No less so have been some of the effects of such price movements, and the lack of such effects when they could reasonably have been expected.

One of the so-called lessons of experience is that a period of unsettlement and of declining common stock prices is unfavorable to the flotation of new issues of common stock. But the past three months or so have shown what sharp exceptions there can be to such a rule. Recent wavering and generally declining market prices are a matter of record familiar to everybody, and the tapering off in business activity has not been encouraging. But this has been a time when most offerings of telephone and electric utility common stocks, or of debentures or other securities convertible into common stock, have been eagerly taken. In contrast to the trading markets, the investment markets have been active and receptive.

Table One shows the dollar value of offerings and private placings of utility securities during the first half of 1949 compared with the same period of 1948. The larger aggregate amount of this financing thus far in the current year, $2,049,850,000 as compared with $1,27,992,000 in first half of last year, is the more worth noting since a good many market analysis had forecast that the amount this year would be lower than last year. But the most striking feature is the big increase in sales of common stock by the electric utilities; it looks as if this might develop into a correction of many capital structures unbalanced by the disproportionately large increases in long term debt last year. For many more large offerings of common stocks are on the way. Incidentally, the large total of telephone company bonds sold this year includes $394 million of convertible debentures, most of them bought by existing stockholders with probable intention to convert into stock.

The record that a utility company has offered new common stock, to its own stockholders or to others, does not necessarily mean of course that all the stock was sold. Some offerings during the period covered have been very successful, others have been comparative failures. New York State Electric & Gas offering of 787,644 shares in March was subscribed 93% by the stockholders of the parent com-

TABLE ONE— Utility Offerings and Private Placings

January-June 1949 and 1948

Dollar figures in thousands	Bonds, etc.	Preferred	Common
January-June 1949			
Telephone Utilities	$ 520,563	$ 3,552	$ 14,170
Electric Utilities	702,742	67,969	272,155
Other Utilities	367,702	20,641	70,351
Total	$1,591,012	$102,162	$356,676
January-June 1948			
Telephone Utilities	429,740	5,384	7,194
Electric Utilities	620,429	124,297	86,760
Other Utilities	225,030	6,502	22,656
Total	$1,275,199	$136,183	$116,610

NOTE: These figures do not include common stocks taken by parent companies.

TABLE TWO—Telephone Company New Capital Issues

March-June 1949

Bonds and Debentures	Amount	Price	Yield
March			
California Water & Telephone Deb. 3.75% 1968	$ 1,000,000	100.00	3.75 %
New England Tel & Tel Deb. 3% 1974	35,000,000	100.75	2.95 %
Indiana Associated Telephone 1st 3.375% 1979	2,500,000*	100.00	3.375%
Southwestern Associated Telephone 1st 3.375% 1979	2,250,000*	100.00	3.375%
April			
General Telephone Corporation Deb. 4% 1964	10,000,000	100.00	4.00 %
Pennsylvania Telephone Corporation 1st 3.125% 1979	2,500,000*	100.50	3.10 %
Bell Telephone of Pensylvania Deb. 3% 1974	25,000,000	101.77	2.90 %
California Water & Telephone 1st 3.25% 1979	1,000,000	100.00	3.25 %
Southwestern States Telephone 1st 3.50% 1975	600,000*	100.00	3.50 %
May			
American Tel & Tel Conv. deb. 3.125% 1959	394,372,900	100.00	3.125%
Bell Telephone of Canada 1st 3.375% G 1975	40,000,000	102.128	3.25 %
Capital City Telephone (Mo.) 1st 3-½% A 1969	820,000*	100.00	3.50 %
Jefferson (Iowa) Telephone 1st 4% C 1969	65,000	102.00	3.85 %
British Columbia Telephone 1st 3.75% 1971	3,000,000*	100.75	3.70 %
Eastern Nebraska Telephone 1st 4% 1969	60,000	102.00	3.85 %
California Water & Telephone 1st 3.25% 1979	600,000*	101.94	3.15 %
Bethel & Mt. Aetna Tel & Tel (Pa.) 3.75% Note 1969	250,000*	100.00	3.75 %
June			
Logan Home Telephone (Ohio) 1st 3.50% A 1969	150,000	102.17	3.36 %
Los Gatos Telephone (Calif.) 4% mtge note 1969	600,000*	100.00	4.00 %
California Water & Telephone 1st 3.125% 1979	500,000*	99.50	3.15 %
Interstate Telephone (Wash.) 1st 3.25% 1979	1,000,000*	101.00	3.20 %
North Plain Telephone (Texas) 1st 5% 1971	300,000	100.00	5.00 %

Preferred Stocks	Number of Shares	Price	Yield
Interstate Telephone (Wash.) $5.50 Pfd. no par	5,000	100.00	5.50 %
Chenango & Unadilla Tel. Corp. (N.Y.) 4.50% Pfd B $100 par	2,000	100.00	4.50 %
Associated Telephone Ltd. (Calif.) 5% Pfd. $20 par	100,000	21.25	4.70 %
North State Telephone (N. C.) 5% Pfd $100 par	2,500	100.00	5.00 %
Bethel & Mt. Aetna Tel & Tel (Pa.) 5% Pfd $50 par	1,000	52.00	4.81 %
Common Stocks			
West Coast Telephone Com. $20 par (2.00)	35,000	27.25	7.34 %
Mountain States Tel & Tel Com. $100 par (6)	53,434	100.00	6.00 %
Chenango & Unadilla Tel. Corp. (N.Y.) Com. $100 par (6.00)	1,000	100.00	6.00 %
Peninsular Telephone (Florida) Com. no par ($2.50)	42,448	38.00	6.58 %
Southwestern States Telephone Com. $10 par (0.50)	56,000	10.00	5.00 %
Southern New England Telephone Cap. Stk. $25 par ($1.60)	293,320	25.00	6.40 %

*Private Sale.

pany to whom rights had been issued; Southern California Edison's 800,000 shares in May were oversubscribed; Portland General Electric's 251,033 shares in June were all quickly sold, and other successful offerings included those of Cleveland Electric Illuminating 464,912 shares, South Carolina Electric and Gas 341,165 shares, Potomac Electric Power 592,250 shares. Over 90% of these were sold against the exercise of rights. But on some other offerings the response of stockholders was poor. Mountain States Telephone in March offered to stockholders other than its parent 53,434 shares, and only 8,621 were taken. Columbia Gas System in May offered to stockholders 1,345,300 new shares, priced at the market, but only 1,040,000 shares were taken. Consolidated Gas Electric Light and Power of Baltimore offered to its stockholders in June 219,546 shares, also priced at the market, only 120,733 shares were taken; and of Central Illinois Public Service Company's offering of 446,000 shares the same month only 169,777 were taken by stockholders. In some cases the untaken shares were later sold to the public by underwriting bankers, in other cases they were withdrawn from offering.

The failure of stockholders to buy new shares in their company should not be taken as expressing a lack of confidence in the company. It is usually because the price of the new shares is too high, that is, no particular advantage attaches to the exercise of the subscription rights. Most of the comparative failures in the period's offerings were priced at the market, despite the known fact that nearly all stockholders expect when their company offers them additional stock it will be priced at something below the market. From one viewpoint the stockholder is satisfied when the new shares are priced at the market, for there is then no dilution of his market value; but such pricing offers him no particular inducement, let somebody else buy the shares. American Telephone has always priced its new issues realistically, including its last offering to stockholders of 3.125% ten-year debentures. These give a call on the stock beginning next September at 130, while at the date of offering the stock was selling at over 140.

Prices and Earnings

IN OTHER words the success or failure of an offering of new securities at almost any time depends largely on its pricing. Prices must be real-

(Please turn to page 56)

WE'RE SELLING *again!*

By H. F. Bridges

"HAVE YOU thought about an extension telephone for that game room, Mr. Jones?" . . . "Mr. Smith, to operate your office efficiently and give your customers better service, you really need our cordless switchboard. Now we can provide . . ."

Yes, phrases like these are once more a part of our company's standard vocabulary. Some telephone items are still pretty hard to get . . . some services cannot be sold *everywhere* . . . but shortages are being progressively licked . . . and we're going out selling *what* we can, *where* we can.

There are good reasons for the industry's renewed sales efforts. Telephone sales mean telephone revenues . . . a very important point during these days of heavy expenses and a dwindling rate of return for your telephone company.

Don't forget, too, that your company is in competition for the customer's dollar with other types of businesses. Salesmanship is the answer when a businessman's budget dictates that he can have either additional telephones or a new adding machine. It's our commercial department's job to review the situation—to show him why he may need additional telephone equipment—how he can profit by it.

A third reason is that we're *always* seeking new ways to improve our customer's service. An extension telephone or a key set does just this. The service should be adequate for the customer's *needs*.

Maybe you've forgotten (or if you're a new employe maybe you've just never heard) that we have hundreds of telephone items "for sale," during normal times. These include such "regular merchandise" as local and long distance service, extension telephones, PBX equipment and intercommunication systems in addition to more specialized items and services such as conference calling, colored telephones, special telephone equipment for the hard-of-hearing, loud bells and gongs for out-of-door locations, portable telephones, ship-to-shore and mobile telephone service.

During the war, of course, we, as well as our suppliers devoted all of our resources toward serving the armed forces and the war industries and in maintaining telephone service. Orders poured in and our waiting lists grew longer and longer. To help meet the demand, older desk-type telephone instruments were pulled out of warehouses, dusted off, reconditioned and installed. Party line service grew and grew as we tried to s-t-r-e-t-c-h our facilities. Long distance traffic became so heavy that it even became necessary to request our customers to *restrict* their calls to leave the voicepaths open for vital war calls.

When the war was over we found ourselves with over 100,000 held orders for main telephones and thousands more requests for better grades of service. The years since V-J Day have been miracle years during which Illinois Bell has added about as many telephones as there are in Cleveland and Dayton, O., combined. There has been a tireless fight to reduce the waiting list, to improve the service in every way possible. While some of the battle is still being fought, we've been able to satisfy most of the demand for "main station service" and, wherever we can, we're back to selling again.

Here are some of the things on our "counters" today!

First Casualty

The first war-time casualty to make a complete recovery was long distance service. When more circuits and more employees were added and when operating efficiency became improved, service became faster, more accurate. We were able to handle more and more calls. And so we began to encourage the use of long distance service by residence as well as business customers. With the advent of operator dialing and coaxial cable, long distance service became still better and its use was encouraged more and more. For the past year, the speed and economy of long distance calling have been pointed out to our customers by our sales people and through newspaper advertisements and bill inserts. Throughout our territory the company has been telling—and selling—the long distance story since last fall.

That handy stepsaver—the extension telephone—is available again and the story of its convenience is being told to all of our customers everywhere. We have an adequate supply of telephone instruments, though they're not all the latest types. No one is waiting for main telephone service because of an instrument shortage. Long a favorite with our customers, the extension will be welcomed back by many a weary housewife, who it seems, is invariably upstairs when the phone rings downstairs. There are many reasons why extension telephones are desirable. In addition to their general convenience, extensions are a boon to invalids or bedridden persons; they afford more protection in case of emergencies, and they're a big help in the kitchen, the "housewife's workshop." They're an *extra* convenience,

too, in special locations such as game or rumpus rooms.

Our sales forces are busy these days telling our business customers about Private Line (TWP) Service. TWP is a *private* teletypewriter service providing a direct and continuous connection between specified points as, for instance, a headquarters office and one of its branch offices. Through its use, written orders, instructions and other data can be sent and received instantly and accurately.

Additional central office facilities are needed before TWX (teletypewriter exchange) service can be offered as a "sales item." With this service, subscribers can be connected with *any* other TWX subscriber in the U. S. at any time, just like telephone service.

As a further step in providing better service for customers, we are encouraging subscribers, wherever there appears to be a need, to take extra listings in alphabetical directories throughout our territory. Extra listings are frequently needed to direct calls to the customer which otherwise might not be completed. This includes listing of names, other than the regular listed name, which customers may consult in order to get in touch with the family or firm. Reference listings, such as alternate call number and after-office-hour listings, are also sold.

A clean, convenient and otherwise attractive public telephone at every location where there is a public requirement is the objective of the Public Telephone people. This requires good signs, choice space, etc., but pays dividends to all concerned, the telephone user, the store proprietor and the telephone company. The public telephone improvement program is well under way.

Our long range objective is, of course, to give our customers all the service they want and the kind they want—when they want it. The wartime demand for service in the face of equipment and wire shortage resulted in the growth of party lines. Now we are able to "regrade" many of these lines to better type of service. The demand is still great for "regrades" but, wherever outside wire conditions permit we are changing four-party lines to two, two to one. In a few localities the condition is so improved that we are informing customers about the advantages of one or two-party lines.

In preparation for the bigger sales era to come, sales training programs are now being presented by the commercial departments of both areas. The sales series explains various applications for the many services that we have to offer our customers and instructs sales forces in the proper methods of conducting telephone surveys on the customers' premises. "Refresher" courses also are given.

There are, of course, many other items or services on the "available" list but in many cases the demand for them is so great that little, if any, selling effort is needed. Among these are the new 1-A, 4-button illuminated keysets which have push buttons of translucent plastic through which the signal shines from within the base; regular four- and six-button key set equipment; key cabinets and manual private branch exchange equipment.

On the way for milady's boudoir or the master's den, are colored handsets in such intriguing colors as ivory, pekin red, old rose, dark blue and gray green. Metallic colored sets such as bronze, silver, brass and gold also will be produced. At present only ivory sets are available. There are a few hundred held orders for colored handsets, and the ivory sets are being made available to those on the waiting list before active promotion of this item is begun.

Our sales program is, as yet, in low gear . . . but it's getting ready to shift into high as more and more people on our waiting lists are cared for.—(*Reprinted from the Illinois Bell Telephone News*).

What Is 'Adequate'?

Adequate telephone service in the eyes of the user is now something beyond an instrument which enables him to hear and be heard.

Our understanding of the word "adequate" must, therefore, keep abreast of this changing current of public opinion. "Adequate" telephone service should mean "complete," "convenient" and "pleasing to the eye," as well as "Sufficient" or "enough." As we have improved in our dependability and as telephone communications are used more in our daily lives and business, all of us should be thinking constantly of means to make telephone service more desirable to the customer, which in turn would increase the usage, thereby increasing our revenue.

New Methods Provide *Economical Tree Growth Control*

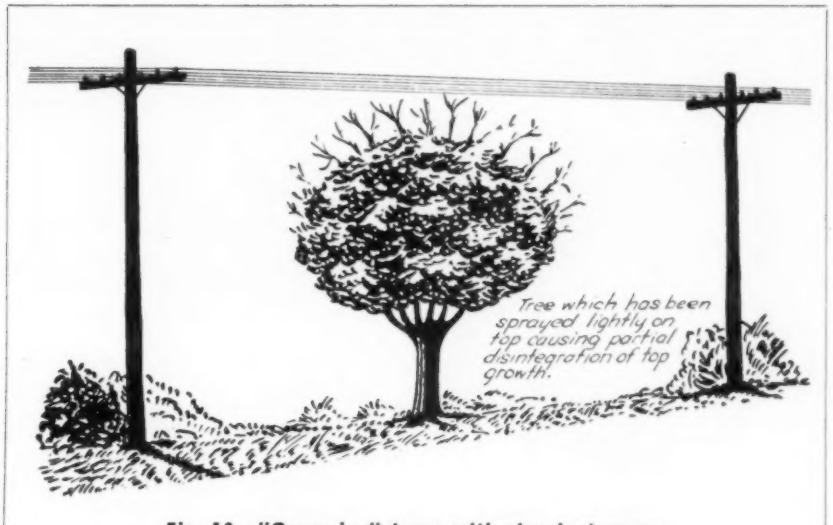

Fig. 10—"Crowning" trees with chemical spray.

Control of shrub and tree growth under pole lines has become an increasingly serious problem. In this concluding section of a two part series Mr. Burden discusses spraying programs and spray equipment.

By B. C. Burden

Telephone Engineer, Lincoln, Nebraska

IT HAS been suggested that spraying could be used effectively to "chemically prune" top growth of trees which the land owner does not wish completely killed but which are a source of annual trimming expense to telephone companies and difficult to trim. (See Fig. 10). This would be accomplished by fall spraying just before the leaves turn color and by the use of a directional high-pressure low-volume type spray which can be largely confined to the upper part of the tree. Careful control of the amount of chemical and point of application would be exercised to get killing action on only the top one or two feet of growth. In the northern states, subjected to heavy winter snow and sleet, the killed twigs would break off during the winter months to give the desired "pruning" to the top.

Ammate has been used effectively to kill the roots of a number of different types of large trees by what is known as the "cup method" of application. In this method the Ammate is applied in a heavy concentration to freshly cut tree stumps with a paint brush. It is also feasible to kill large standing trees which can later be removed by cutting or by bulldozing by simply applying the chemical in "cups" cut in the tree close to the ground line.

Experiments of the Southern Forest Experiment Station in Louisiana indicate that excellent kills can be obtained by injecting Ammate into the trees even in the dead of winter! This work is not conclusive so far as the northern states are concerned but does point up the possibility of making the tree control problem a year around technique. Cups or notches are cut in the trunk of large trees close to the ground as possible as shown in Figure 11. This is done by cutting out a chip with two licks of an axe. One cut should be made about two inches above the other and each should slant down to about one inch thick. The number of cups depends on the size of the tree. They should be spaced not more than six inches apart around the base of the trunk of a large tree. Two cups are sufficient for trees up to six inches in diameter and an additional cup is needed for each two inches increase in diameter. For example a 10 to 12 inch tree would require at least five cups.

One level tablespoon of Ammate crystals should be placed in each cup for trees more than three inches in diameter. One heaping teaspoon to a cup is sufficient for trees less than three inches in diameter. The crystals are absorbed by the tree within twenty-four to forty-eight hours. If it is desired to kill the tree top with a minimum of resprouting at the base it is important that the cup be made as close to the ground line as possible, preferably in the main roots if they show above the ground otherwise resprouting may occur below the cups.

Ammate Works Well On Many Specie

LARGE standing trees poisoned with Ammate by the cup method should not be cut down at least for a year because this may cause sprouting. The poisoning effect of Ammate appears to continue for a year or more. Trees that seemed resistant the first year may die the second growing season if they are not cut down. Trees under three inches in diameter and which are too small to cup may be cut down close to the ground leaving a V shape stump, Ammate crystals should then be applied to the stump immediately. The late summer and early fall is a good time to use the cup or stump treatment.

The cup method using Ammate works well with such species as sweet gum, black gum, elm, ash, cypress, iron wood, willow, red oak, post oak, pin oak, water oak, and pine. It works more slowly on hickory, bitter pecan, beach, persimmon, and white oak. As a spray it is effective on small sprouts, of sweet gum, oak, black gum, hickory, bay, willow, and sumac.

Cost of Spraying Programs

The cost of controlling tree and

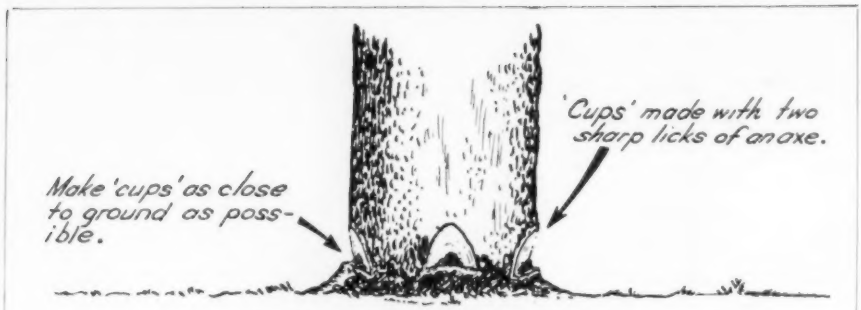

Fig. 11—Cup method of application.

brush growth by chemical means will vary widely depending on: the amount and type of foliage to be sprayed or cupped; its location with respect to growing crops; height of foliage; condition with respect to balance of foliage and root structure; etc. The various chemicals required are now readily available through agricultural stores (or telephone supply houses). In general the cost of the chemicals will be small compared to the results obtained.

With Ammate costing 18 cents a pound (higher now) one experiment station has found that the cost for chemicals of "cup" treating trees one to three inches in diameter is one-half cent per tree and about one cent per tree for those three to six inches in diameter. Eight to ten inch trees require four cups and can be treated for about two cents. On an acre basis, assuming three hundred trees per acre, the same station has found the cost of chemicals to range from $3.00 to $4.00 per acre.

The cost of chemicals for spraying foliage of heavy stands has proven to be $15.00 to $20.00 per acre for materials. On the subject of costs one large tree control company points out that their experience shows that the spray treatment of heavy brush along the roadside results in costs almost as much as for hand cutting although they hasten to point out that hand cutting methods are not directly comparable with spray methods as spraying, if properly done, will produce a complete kill of roots and a fairly permanent correction, whereas hand cutting is a temporary expedient and will normally give relief only for a year or so.

Dosage and Mix For Spray Solutions

THE DU PONT Company recommends for an Ammate foliage spray solution a concentration of 2 pounds of Ammate per gallon of water. When it is to be applied to cups or freshly cut stumps they recommend a concentration of 4 pounds per gallon of water.

There is some difference in opinion among the tree experts as to what constitutes the best type of spray equipment for use along pole lines. Some have recommended high pressure spraying and others low pressure. In the writer's opinion there is no set formula that would apply to all situations. Obviously to spray large tall trees, a high-pressure high-volume type spray such as used in orchard work would be required to get an adequate and economical treatment. For spraying low shrubs and small trees a medium or low-pressure spray rig could be used effectively as complete coverage could be obtained without so much danger to damage to crops or desirable shade trees. Where the trees are more or less accessible from the road a low pressure pack type sprayer may be used. This type of application can be expected to increase labor costs as compared to spraying directly from a moving vehicle.

Sprays can be applied either by means of piston type one or two-cylinder pumps capable of developing pressures as high as 600 pounds, or by means of low or medium pressure gear or rubber impeller pumps whose maximum pressures usually do not exceed 60 to 70 pounds.

When there are no crops or shade trees on the field side of the trees to be killed it is often feasible to use high-pressure spray applied directly from a slowly moving truck. Another method is to use a light weight spray boom attached to the truck and so arranged that it hangs directly over the trees to be sprayed and can be lifted readily to pass around each pole. Low pressure spraying works best with the boom method where the spray nozzles can be close to the foliage. Figure 12 shows a typical high pressure rig.

The low pressure rig shown in Figure 13 can be built at relatively low cost by companies desiring to construct their own equipment. It uses a 55-ballon barrel (or larger),

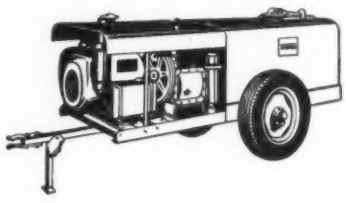

Fig. 12—Typical high pressure spray rig.

a bronze gear pump, a relief valve, and pipe and fittings as shown. A three to six h.p. engine is about the right driving size depending on the pressure and volume desired. Gear type pumps are preferable to the

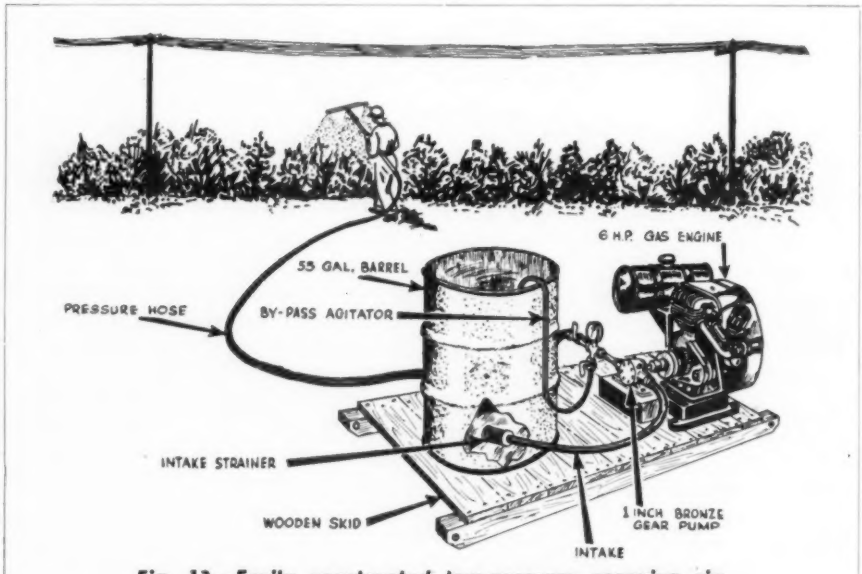

Fig. 13—Easily constructed low-pressure spraying rig.

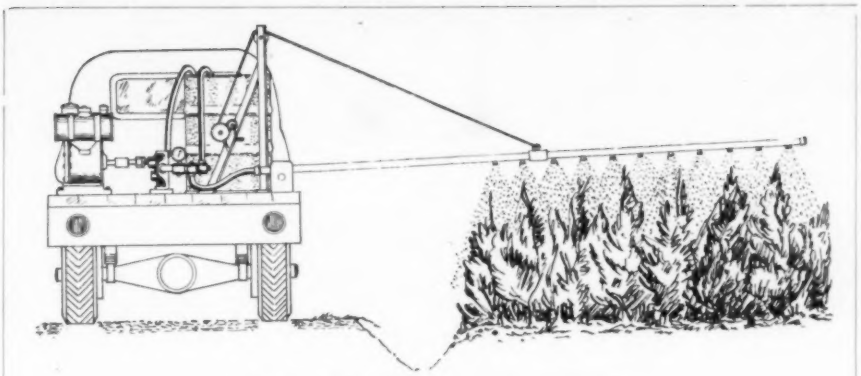

Fig. 14—Roadside boom arrangement.

rubber impeller type as higher pressures can be developed with them. Characteristics of a typical gear type pump are given in Table One.

Pressures of from 15 to 20 pounds are usually adequate for boom spraying of low shrubs and small trees particularly when the boom can be carried above and close to the foliage being sprayed. However, to get good penetration in exceptionally heavy foliage and a sure kill the higher pressures may prove preferable provided high pressure sprays can be used without endangering near crops or shade trees. If sprayig is done on still days and particularly if the spraying can be done from the field side of the trees rather than the road side the control of the mist can usually be safely regulated.

Figure 14 shows how a light weight boom equipped with several spraying nozzles could be used for span spraying in locations where the truck can travel adjacent to the lead.

HEAD CAPACITY TABLE

Head Ft.	500 RPM		700 RPM		870 RPM		1160 RPM		1450 RPM		1750 RPM	
Water	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
10	2.9	1/6	4.0	¼	5.1	¼	7.0	⅓	9.0	½	10.5	½
20	2.8	1/6	3.9	¼	4.9	¼	6.8	⅓	8.6	½	10.2	½
30	2.4	1/6	3.5	¼	4.5	¼	6.2	⅓	7.7	½	9.2	½
40	2.0	1/6	3.1	¼	4.0	⅓	5.7	½	7.1	½	8.4	¾
50	1.1	1/6	2.3	¼	3.2	⅓	4.7	½	6.0	½	7.3	¾
60			0.9	¼	2.1	⅓	3.6	½	4.8	½	5.9	¾
70					0.7	⅓	2.2	½	3.3	½	4.2	¾

Table I—Characteristics of bronze gear type pump.

Conclusions

THE CHEMICAL control of tree growth would appear to hold forth excellent possibilities for lowering the cost of handling the tree problem. It is not a cure-all or panacea for all of the troubles and expense generated by the incompatability of trees and telephone wires. wide spread use made of chemical sprays in the utility fields in the years ahead. Special equipment will be designed to localize the spray and keep it from drifting; the techniques and chemicals will be mastered; and the problem of removal of dead wood found not too important. For the small 4 to 6-foot hedge and shrub type growth (spray method most effective for this type) the problem of the unsightliness of the dead wood would be minor, as the wood would disintegrate or could be easily pushed over by hand after it had been dead a few months.—THE END

But it is certainly a new tool worthy of careful study on the part of every progressive telephone engineer and plant maintenance superintendent.

As pointed out in an early paragraph of this article the use of sprays for tree control has certain disadvantages. But in spite of these disadvantages there will undoubtedly be

Part I of Mr. Burden's article on "New Methods Provide Economical Tree Growth Control," appeared in the June, 1949, issue of TELEPHONE ENGINEER AND MANAGEMENT. *In the first installment, Mr. Burden discussed bulldozer treatment, chain saws, pneumatic trimmers, aerial ladders, and characteristics of chemicals used.*

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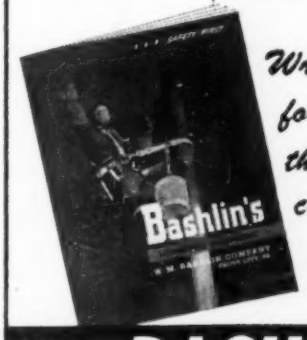

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Here indeed is an investment that's *always* good. Here is a telephone that is universal in application . . . . that provides the finest, most modern telephone service for now, and for the unseen future.

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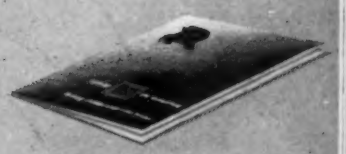

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Recent Developments In Strowger Automatic Toll Ticketing

By L. L. RUGGLES
Chief Sales Engineer
Automatic Electric Sales
Corporation

PAPER presented at recent California convention describes equipment that meets demands for more efficient means of switching and a simplification of the billing process required to assure collection of earned revenue.

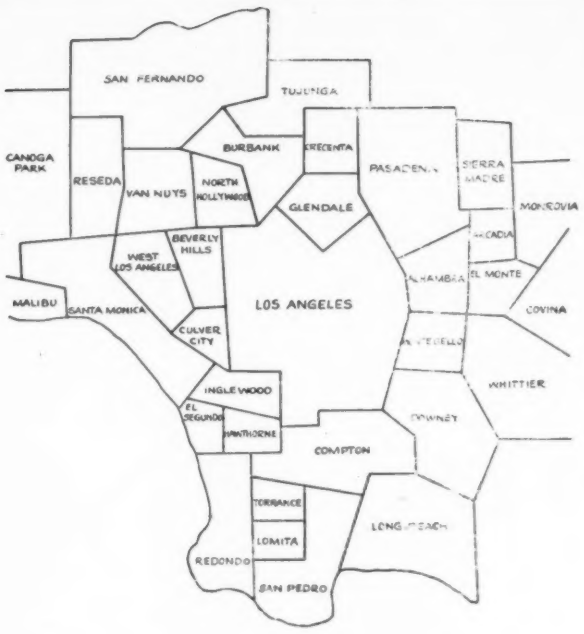

Fig. 1. Map of Los Angeles Metropolitan Area.

TWO YEARS ago at your meeting in Santa Monica, it was my privilege to speak to you on the subject of Nationwide Toll Dialing and to demonstrate some of the facilities which had been developed for the completion of toll calls by means of operator controlled automatic telephone equipment through trunk networks serving the United States and Canada.

My subject today also deals with the completion of toll calls by means of automatic switching equipment, but relates sufficiently to AB or short haul toll calls completed by subscribers without the aid of an operator. Included in this plan is equipment which will automatically produce a machine-made record of such calls and provide the basic record forms from which standard business machines will print subscribers' bills.

The ever increasing volume of toll traffic and the rising costs of handling it, have developed a demand for more efficient means of switching, and, in addition, a simplification of the billing process required to assure collection of earned revenue.

One of the labor saving devices which enable a group of operators to handle a larger volume of long distance traffic is the plan now being rapidly extended for Nationwide Toll Dialing as mentioned above. Another very large factor in the over-all toll picture is the AB (short haul) toll business which is offered in a densely populated area, served by a number of separate exchanges inter-connected by toll facilities. Short-cut methods have been developed for handling such short haul traffic, such as a simple two-number ticket and other devices with which you are familiar. Even then the cost of writing the tickets and of processing those tickets through auditing routines and billing, represents expense which is out of proportion to the revenue obtained from such traffic.

A number of years ago, engineers and inventors conceived the idea of enabling subscribers, served by automatic telephone systems, to complete short haul toll calls without operator assistance. Such a plan of course would require a machine of some description to record the required data from which a bill for the service could be rendered.

One such plan was disclosed in a patent applied for on February 20, 1925, by Mr. John E. Ostline. This patent was issued in 1928. Basically, this scheme provided a means whereby a subscriber wishing to call a station in another community would dial a code to reach the trunk group to the distant town and at the same time activate registration apparatus which would (1) record the calling subscriber's number as he dialled it, and (2) verify the correctness of the calling subscriber's registration of his own number. If the above two conditions were met properly, the subscriber could dial a telephone number in the distant town and a pen register would record the number dialled, on a paper tape. The connection having been established, conversation timing equipment would cause a pen register to mark a tape at one minute intervals to indicate elapsed time of the conversation.

The tape printed by the pen register would then require decoding by the clerical staff before a bill based on the decoded information could be prepared.

You will note that the subscriber making the call was required to register his own number before completing the connection to the called subscriber; and also that a safeguard was provided against errors in dialing a station number other than his own. An error in dialing his own number would connect the calling subscriber to a special operator who would advise the subscriber to release and redial correctly before proceeding with the call. Although this early scheme was not applied commercially, other plans were developed and by 1936 put into operation by the Belgian Communications Administration in Ostend. The Ostend plan provided a means of identifying the calling subscriber without the necessity for dialing his own number first. The

calling station number was printed on the ticket, which was a strip of paper about 1¼ inches wide; likewise the called number was printed on this ticket, but the elapsed time was indicated on the tape by successively punched holes indicating 60-second intervals. A ticket therefore could be several inches or several feet long, and required decoding for calculating the elapsed time and total charge based on the rate which applied. Each trunk circuit in this system required an individual printer.

Subsequently, the Belgian Communications Administration accepted a plan which was developed by our associated manufacturing company in Belgium in cooperation with the same John E. Ostline previously mentioned. An installation was made in Mons, Belgium, in 1937.

The Mons installation was an improvement over the Ostend System in that the information required for billing purposes was all printed on a standard toll ticket and contained all of the information, including—

The calling party's number.
The code for the called zone.
The called party's number.
Date and time of placing the call.
Total elapsed time.
Rate which applied and the *total computed charge for the call.*

This plan also provided a means for identifying the calling party's number without any action on his part. This system offered the additional advantage of a printed ticket containing all of the pertinent information, including the computed toll charge.

An additional feature incorporated in the Mons installation was the avoidance of a printer-per trunk arrangement in favor of a small common group of printers which were occupied only upon completion of toll calls. This feature made it possible to use an improved type of printer capable of printing the complete record on a small standard sized toll ticket.

Since that time, a great deal of development work has been done, and shortly the results of this development work will be applied in an installation at Sunland, California, in the exchange of the Sunland-Tujunga Telephone Company.

The Sunland installation is mentioned because it will be the first complete installation of the Strowger Automatic Toll Ticketing System to be applied commercially in the United States. We want to express appreciation and give deserved credit to the Associated Telephone Company Limited of Santa Monica for its cooperation and active interest in the development of automatic toll ticketing equipment. As early as 1939, Associated Telephone Company offered its complete cooperation by providing a testing ground for a pilot installation and made available valuable information required by the designers for meeting the complex requirements of the plan. The pilot installation which has been in operation in Santa Monica since 1944 has resulted in valuable operating experience and user reaction. Thank you, Associated.

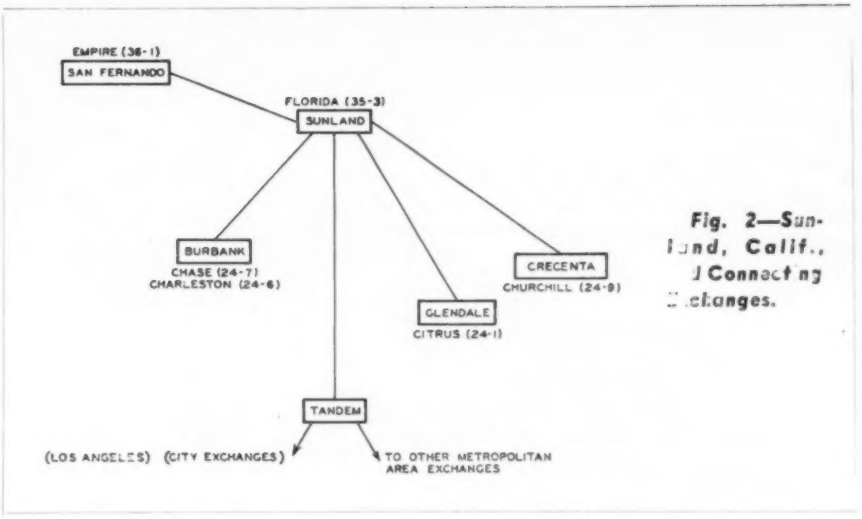

Fig. 2—Sunland, Calif., Connecting Exchanges.

Other installations are planned for this area by the Associated Company and by the California Water and Telephone Company.

The salient features of the Sunland installation and the method of handling the complex trunking and rate requirements which apply will be of timely interest to those of you who operate in this area.

As a background for the demonstration to follow, let me explain briefly the nature of the problem here in the metropolitan area of Los Angeles. This area includes approximately 125 separate communities with closely related business and social interests. The volume of traffic which is offered under these conditions is best appreciated by you who serve important sectors of this territory.

In addition to the Pacific Telephone and Telegraph Company, which operates in the center of this area at Los Angeles and other important portions of the area, the Independent telephone industry is represented by three Independent companies serving parts of the incorporated area of Los Angeles as well as some of the contiguous territory. Approximately one million subscribers are included in the area.

The rate structure in use in the area includes two basic rates: (1) *Local rate*, which permits unlimited local calls within the base rate area for each exchange, (2) the *extended rate*, which allows unlimited calling within the exchange area and to specified adjacent exchange areas. The extended rate is slightly higher than the local rate.

For the short haul toll calls, local rate subscribers are charged at regularly established toll rates, while extended rate subscribers are billed at unit rates based on a zone system which involves a charge of one or more units depending upon the relative distances between the zones in which the calling and called subscribers are located. For example, a subscriber in Zone 1 calling someone in Zone 3 might be charged two units for the initial period, while a call from Zone 1 to Zone 2 would entail a charge of only one unit for the same period. The extended rate subscriber pays a higher monthly rate than the local rate subscriber pays, but the AB calls made by the extended rate subscriber cost him less than similar calls made by a local rate subscriber. This rate structure therefore results in the necessity for establishing a *rate class* for each of the two types of subscribers, and since there are six different zones included in the area, the toll billing scheme must provide for 12 different toll rates or six classes for each of the two types of service.

A toll ticket made for interzonal calls must therefore contain a record of the class of service of the calling subscriber as well as the number of call units involved in each class of

(*Please turn to page* 54)

Economize on Maintenan-

Standardize on

MONOPHONES

Use Monophones exclusively, and your maintenance costs hit bottom! For two good reasons:

First—Monophones are TOUGH!

We know the kind of handling a telephone gets in service—and we build Monophones to take it! Plastics for housings are especially selected for their resistance to breakage, surface abrasions and loss of brilliance. The Monophone transmitter and receiver are "shockproofed" to withstand the banging of the handset, without injury. The dial is Automatic's famous long-life dial, chromium plated. And so it goes, with every part of these rugged instruments.

Second—Monophone Parts are STANDARDIZED

All regular Monophones use the same handset, the same dial, the same transmitter, receiver, induction coil, ringer and condenser. With these few items in your stockroom, you are ready to make replacements on any of your Monophones.

Install Monophones, and you'll know why so many telephone companies have found that "We can save money by standardizing on Monophones." It's the one sure way to beat maintenance costs!

Standardize on Monophones—starting NOW.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants
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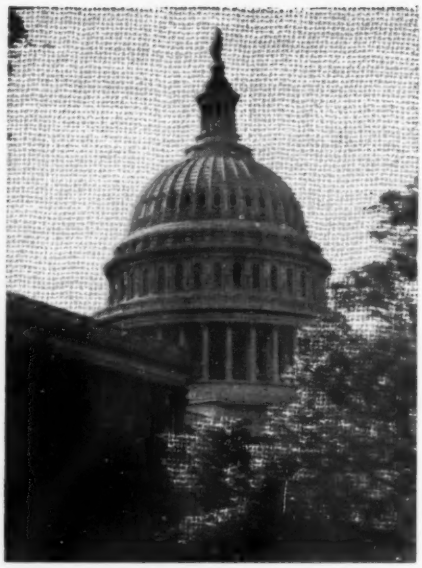
AUTOMATIC ELECTRIC SALES CORPORATION, 1033 W. Van Buren St., Chicago 7, U.S.A
Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATION

Type 40 Desk Model Monophone—durable, sleek in appearance.

Wall Mounting
one, noted for its
nce and decorative

Type 43 Compact Monophone for desks, wall or post mounting.

Type 44 Wall Monophone—sturdy, efficient utility instrument.



Washington Bureau REPORTS

BY ROLAND DAVIES and FRED HENCK

Excise Taxes

THE LONG postwar wait of the nation's communications companies for relief from the excise taxes imposed during the war—primarily to discourage the use of crowded facilities—may be almost over. At least, the Senate, and possibly the House, will have for the first time since the war an opportunity to vote on a proposal to cut back excises on a large group of commodities and services, including telephone service.

The Senate's chance will come in action on a "rider" to a minor technical tax bill approved by its Finance Committee. The Committee which has been seeking for some time a way to get excise reductions up for a vote without prejudicing important legislation, seized on the routine technical bill which had been approved by the House only a week before.

Earlier, Senator Edwin C. Johnson (D., Col.) barely failed in his effort to have the excise proviso attached to the oleomargarine tax repeal measure. Other members of the Finance Committee felt, however, that such a rider would run the possibility of Presidential veto and that the oleo bill should not be imperiled by such action.

As approved by the Finance Committee, the bill would reduce excise levies on local telephone service to 10% from the present 15%; long-distance telephone service to 20% from 25%; and domestic telegraph and leased line services to 15% from 25%. A large number of other commodities and services would be affected, including transportation of persons, photographic equipment, toilet preparations, furs, luggage, and others.

Despite the concern of the administration and Congress about deficit financing and the danger of further reducing taxes, the plan is thought to have better chance of passage than it would have had a month or two ago because of the increasing fears about declining business and increasing unemployment. Its proponents contend that it would be an important stimulant to general business activity. They concede that it would cost $550 million a year in revenues, at the present rate of buying, but contend that the reductions would produce almost that much in added income and corporate taxes and increased purchase of articles to which the excises apply.

Immediate administration reaction to the plan was unfavorable, but as the recession signs continue to mount, and the President's Council of Economic Advisers reportedly is urging strong measures to combat the rise of unemployment, the possibility that the plan will go through is not entirely remote.

Poage Bill

THE SUBJECT of Congressional adjournment appeared to be the major factor affecting the fate of rural telephone legislation as TELEPHONE ENGINEER & MANAGEMENT went to press. House action on the Poage bill to permit farm telephone loans by the Rural Electrification Administrator was imminent, and passage was regarded as likely, probably with some beneficial amendments. If this turned out to be true, then, of course, the major issue would be whether the Senate will act on the bill before adjournment.

A House vote on the Poage measure had been anticipated by the end of June, but debate and action on the federal housing bill took longer than anticipated, and the Democratic leadership did not want to call up a controversial bill immediately following the hot and heavy arguments over the housing measure. As a result, the Democratic policy-makers delayed the date for bringing the bill up for consideration for more than a week.

Originally, it had been expected that the showdown on the bill would come as a result of a resolution to discharge the Rules Committee from consideration of the bill, submitted by House Agriculture Committee Chairman Cooley. Almost the day before the resolution was due to be called up, however, the Rules Committee cleared the Poage bill for floor action. The change in plans apparently was decided upon to keep the flow of legislation to the House floor under control.

Senate Agriculture Committee Chairman Thomas (D., Okla.) has shown no disposition to hurry the resumption of hearings before his group on the companion bill offered by Senator Lister Hill (D., Ala.). One day of sessions was held on the Hill proposal a month ago. Senator Thomas at that time definitely stated that he desired full consideration of the bill, even if it meant that action could not be taken at the current session of Congress.

With the conclusion of action on the labor-management relations bill in the Senate, the start of consideration of the North Atlantic Pact, and the clearing away of appropriations bill, most of the legislation which the Senate generally considers "must" for this session is pretty well out of the way. As a result, despite the statements of administration spokesmen that Congress will be kept in session until Labor Day or longer, the possibility of adjournment in mid-August is still strong. This could well mean that the Poage measure would die for this session, although the prospect is far from certain.

Wage-Hour

THE 500-STATION exemption for operators at telephone exchanges now appears safe in any new wage-hour legislation to be produced by Congress this year, following the action by the Senate Labor Committee in reporting out amendments to the Fair Labor Standards Act which include the 500-station exemption. The bill orginally had contained a one-operator exemption.

On the House side, a bill long held in abeyance by the Rules Committee also includes the 500-station exemption. Another measure which has been considered would affect only the minimum wage rate itself, and thus would

not change the present 500-station proviso.

Although the possibility of changes in the Fair Labor Standards Act at this session of Congress is still strong, there now is some chance, in view of declining business activity, that there will be no action on the subject this year. At any rate, it is virtually certain that the minimum wage will not be boosted to 75 cents, as proposed by the administration.

Labor

IN WHAT is expected to be a "pattern" case for those preceedings before the National Labor Relations Board with comparable circumstances, the Michigan Bell Telephone Co. and the Michigan divisions of the Communications Workers of America (CIO) have filed briefs with the NLRB on the company's request for proof that the CWA divisions represent a majority of the workers in the appropriate bargaining units.

Michigan Bell said the issue is "Shall 230,000 employees heretofore represented by independent labor organizations be delivered en masse to the CIO on the national referendum vote of a minority of the members of the CWA without being afforded the opportunity of expressing their desires in the matter by means of a fair, impartial, secret ballot conducted by this Board in each bargaining unit as provided by law?"

The company emphasized that "Prior Board rulings establish clearly that change in affiliation, without reference to the circumstances by which it is accomplished, as a matter of law removes the contract as a bar to an election determining the representation question thus raised."

The unions argued that affiliation "is normally an internal matter, and becomes the employer's concern only when, unlike the instant situation, the affiliation results in rejection and abandonment of the collective bargaining entity by a substantial number of employees."

It is said that CWA's structure, "which has not been changed or affected in any way by its affiliation with the CIO, follows the pattern common to most international labor unions."

New Building Planned For Libby, Montana

The Interstate Telephone Co. has awarded a contract for the erection of a new telephone building at Libby, Mont., to Walter H. Varnum of Coeur d'Alene according to an announcement made by C. E. Hoy, general superintendent, Spokane.

The building will cost in excess of $39,000 in addition to the necessary expenditures for a lot, new equipment and the cost of moving, estimated at about $20,000 more, which will bring the estimated cost to $75,000, including labor costs.

Coming Conventions

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, Sept. 22-23.

Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 22-23.

United States Independent Telephone Association, Stevens Hotel, Chicago, October 10, 11, 12.

Virginia Independent Telephone Association, Chamberlin Hotel, Old Point Comfort, Va., October 20-21.

North Carolina Independent Telephone Association, Carolina Hotel, Pinehurst. N. C., October 27-28.

South Dakota Telephone Association, Cataract Hotel, Sioux Falls, Nov. 9-10.

Georgia Independent Telephone Association, Henry Grady, Hotel, Atlanta, Ga., November 14-15.

Missouri Telephone Association, Governor Hotel, Jefferson City, Mo., November 14-15.

Lincoln T.&T. Advances W. H. Husing to Manager

William H. Husing of Tecumseh, Neb., has been appointed manager of the Lincoln Telephone and Telegraph Company at Sterling. Clyde Burge, the company's district manager, in making the announcement said that Mr. Husing would be in charge of plant and commercial responsibilities in the company's exchanges at Adams, Burr, Cook and Sterling. He will headquarter at Sterling.

Mr. Husing was first employed by the Lincoln Telephone & Telegraph Co. in 1942 as a combination man at Seward, after working for a telephone company in Missouri. He transferred to Weeping Water in 1943, and in 1945 joined the Army Signal Corps, where he served a year, after which he resumed his telephone work as a combination man at Tecumseh in 1946.

Herr van Soemmerring's wonderful bubble-graph

IT WASN'T long after Volta developed the electric battery before a number of "telegraphs" appeared! Among them was this unusual contraption, invented by a German anatomist in 1807.

It employed 35 separate circuits, one for each letter of the German alphabet, plus ten numerals. Incoming messages were "read" by watching bubbles of hydrogen rising at the different terminals in an electrolytic bath!

Since electricity was first used for communication, insulated circuits have been of great importance. For over 80 years, Hemingray Insulators have kept pace with pole line requirements.

Hemingray Number 53

This advertisement is one of the Hemingray series on the history of communication.

HEMINGRAY INSULATORS

American Structural Products Company

Muncie, Indiana

Subsidiary of **Owens-Illinois Glass Company**

Successful INDEPENDENT TELEPHONE MAN Says:

J. S. KERSTETTER,
Carbon Telephone Co.,
Lansford, Penna.

"Our company has bought Kellogg equipment for many years, and has always received prompt and courteous service. We find that their equipment is designed for flexibility and low maintenance."

Guard Against Overstrain and wire service failures with the Dillon Dynamometer. With it you can register in pounds the exact load on wire, messenger or guy strand. This helps prevent devitalization of wires due to overstrain, by making sure tension is correct. Made by W. C. DILLON & CO., INC., it's small, light and easy-to-use.

Long Life Expectancy—is built into pressure-treated Southern Pine Poles and Crossarms. Carefully and thoroughly treated by the AMERICAN CREOSOTE WORKS, INC., these poles have the extra durability required for dependable service under the toughest climatic conditions. For longer lasting, stronger poles, use "Pressure-treated Southern Pine."

for EASIER ORDERING PROMPT HANDLING QUICK SHIPMENTS

...send your next order to KELLOGG

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

For Service from a Nearby Distribution Point, Order Your Line Supplies from:

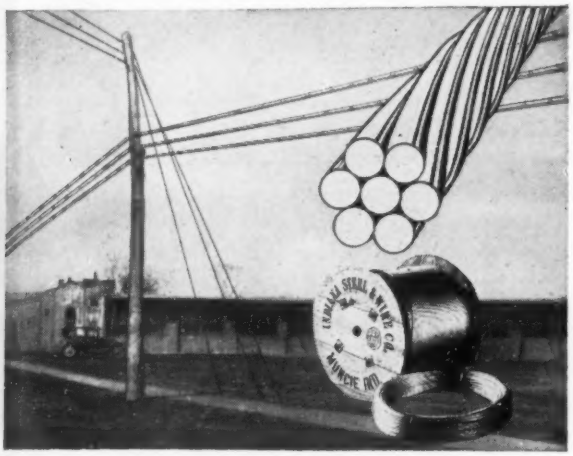
KELLOGG SWITCHBOARD AND SUPPLY COMPA

SUPPLIES

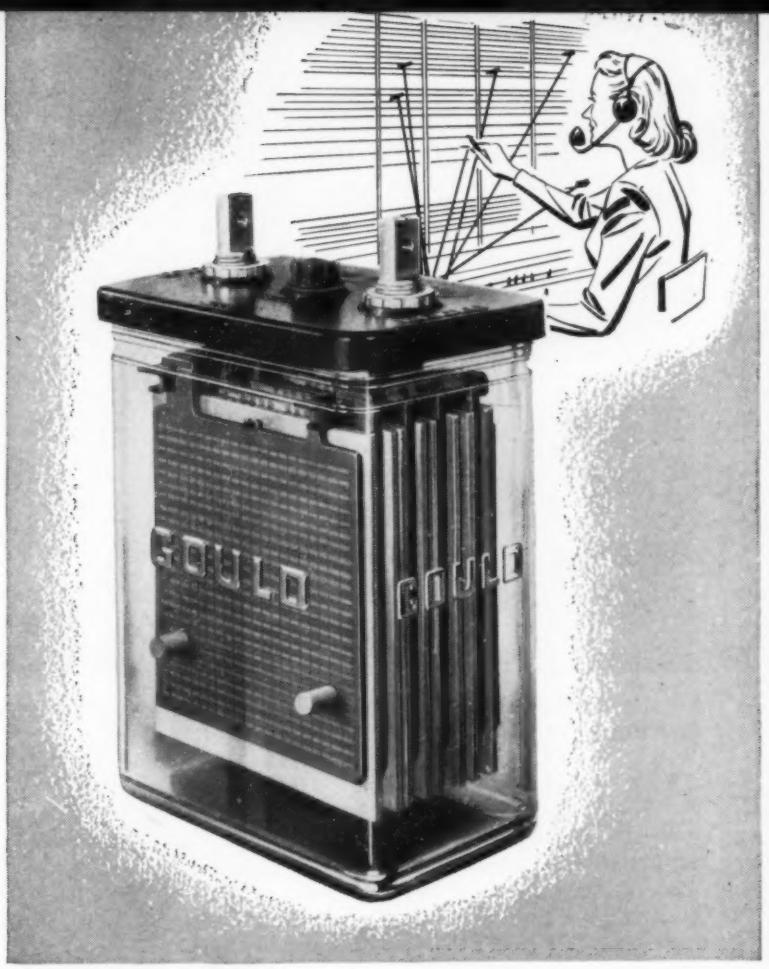
Factory and General Offices: 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL.
Branch Offices: KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FR HE

Fits Telephone Needs to a "T". Ray-O-Vac Telephone Dry Batteries are built to resist deterioration when not in use. Their internal protective coating, developed by RAY-O-VAC COMPANY, extends their life, whether used or not. The result: Fewer battery replacements, and thus lower costs.

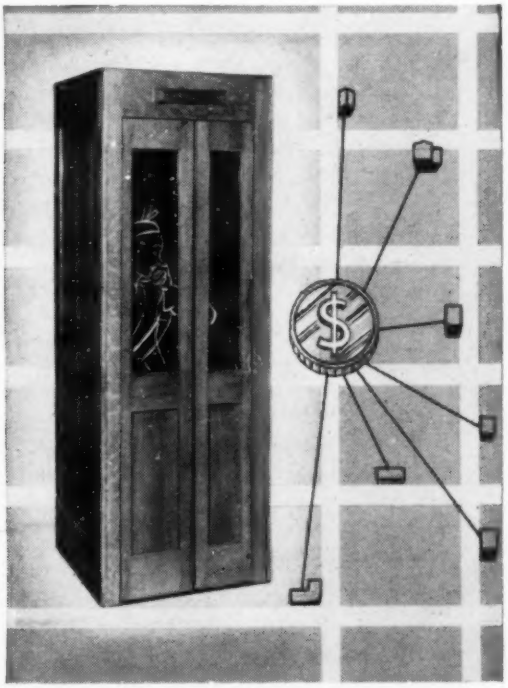


The Time-Tested Steel Strand! A heavy, ductile, tightly adherent zinc coating, applied by the famous Crapo Galvanizing Process, provides lasting protection from corrosion in Indiana Crapo Steel Strand. Made by the INDIANA STEEL & WIRE CO., its rugged strength minimizes maintenance.

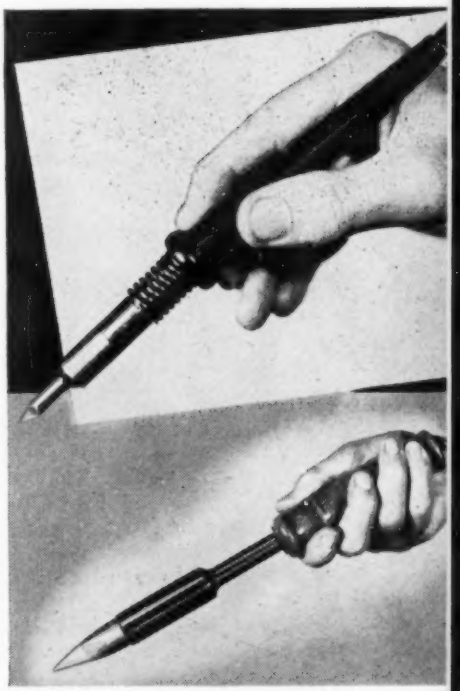


For Dependable Power, standardize on Gould Planté batteries—the finest stationary batteries money can buy. Thick, grooved, pure lead positive plates enable them to deliver an amazing number of years of trouble-free service. No wonder they're known everywhere as the aristocrat of batteries. Made by GOULD STORAGE BATTERY CORP.

Sealed Against Trouble! Communication equipment manufacturers demand Kester Plastic Rosin-core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-closed circuits. Avoid trouble—use KESTER SOLDER COMPANY solder.

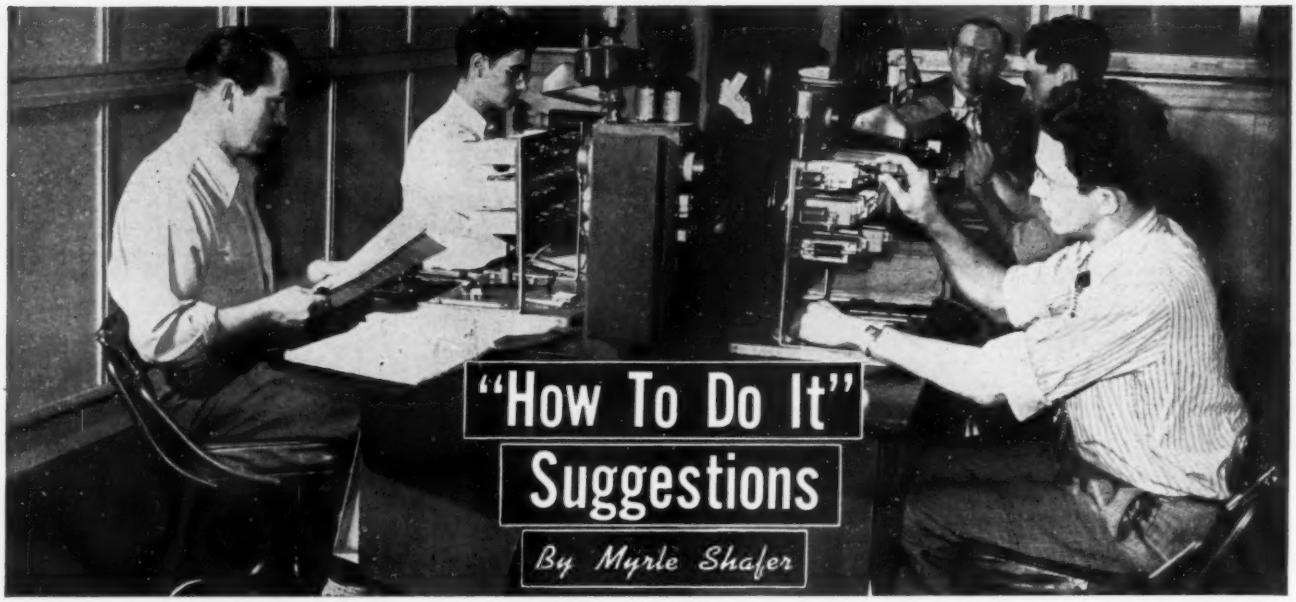


Make Every Pay Station a Paying Location! Churchill booths attract extra patronage everywhere. That's because they give the public the privacy, roominess and comfort it wants. Above is the CHURCHILL CABINET CO.'s No. 100 booth, with automatic light switch and ventilator.



Neat, Precision Soldering is easy when you us a Vulcan Soldering Iron. Made by VULCA ELECTRICAL CO., these irons give unin paired heat production, last longer. Made in 1 sizes of screw and plug tip types—includin the "Pygmy" tool, for delicate soldering.

HE KELLOGG SWITCHBOARD AND SUPPLY COMPANY



"How To Do It" Suggestions

By Myrle Shafer

Fluorescent Fixture Designed For Easy Installation

PRESENT day fluorescent fixtures require the use of a step ladder whenever it is necessary to replace a burned out lamp or a defective ballast. Often such replacements must be made in a busy location, thus tending to interrupt routine work in offices, operating rooms, or shops.

A new type of fluorescent fixture has been developed that is intended to minimize this nuisance. The fixture has a reflector assembly complete with lamps, lamp holders, starters, ballast, wiring, reflectors, and louvres, which can be released with a light weight maintenance rod and lowered for servicing and cleaning.

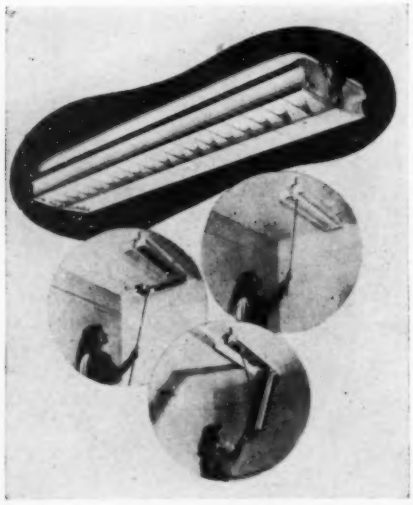


Fig. 1—New Guth-Lite fluorescent fixture with "Jacknife" hinge. Insets show method of lowering reflector assembly.

Figure 1 shows the new luminaire and the associated insets illustrating the steps in lowering the reflector. A simple twist of the wrist unlocks the assembly for letting it down. The reflectors and louvres can be cleaned from the floor without the use of ladders, since a jack-knife type hinge permits easy joining and disjoining.

The two-piece jack-knife construction of the luminaire enables economical short cuts in the installation of this unit. The separate channel weighs ten pounds and can thus be mounted by one man. The channel can be quickly wired without interference from the reflector assembly. This assembly includes all wiring and accessories, and is joined to the channel by the "Jacknife" hinge.

The luminaire utilizes two 40-watt or two 100-watt lamps. It is well designed and has an attractive radiant glow when illuminated, an effect produced by side and spill lighting without the use of glass or plastic panels.

Groundline Treatment Of Poles

GROUNDLINE decay is the main factor in the ultimate failure of a pole. This decay occurs in the outer layer of the cellular structure of the pole from just below the groundline to possibly a foot or so below the ground surface. The decay thus is not visible and can only be detected by excavating around the pole.

Pike pole tests only indicate when a pole has reached the end of its service life and it is then too late to apply any effective treatment. Probing the pole at the ground line is an unsafe method as the probe leaves openings through the treated surface in which decay can readily start.

A successful method of treating poles at the groundline involves the application of Osmoplastic around the pole butt. In this procedure, poles that have reached a certain age are excavated to a depth of 17 inches and cleaned. Osmoplastic is then brushed on and a felt bandage wrapped around the treated portion to prevent the chemicals from leaching into the ground. The hole is then backfilled and well tamped. These steps are illustrated in Figures 2 to 7, furnished through courtesy of Osmose Wood Preserving Company.

The Osmose treatment is based on the fact that a chemical substance in concentrated form applied to the surface of a cellular structure will disperse through the structure to a less concentrated medium (moisture) in the cells. This property is known as osmosis.

Fig. 2—Pole prior to excavating for treatment. Note that decay is not evident.

The toxic chemicals employed are sodium fluoride, dinitrophenol, and potassium bichromate in a coal tar body. The moisture present in the pole draws these chemicals into the pole and the toxic sub-

Fig. 3—Excavation made. Pole shows evidence of surface decay below ground line.

Fig. 4—Decayed wood has been trimmed away and pole is now ready for treatment.

Fig. 5—Osmoplastic is applied to the cleaned surface. Brush application of Osmoplastic is used.

Fig. 6—A felt bandage is wrapped around the pole to retain the chemicals.

Fig. 7—The excavation is backfilled and tamped. Retreatment is recommended every seven or 10 years.

stances kill the decay producing fungi.

The manufacturer recommends that butt-dipped poles be treated 5 years and butt-treated poles (dipped and incised), 18 years after being set. Untreated poles need immediate attention. Retreatment is recommended between 7 and 10 years after the last groundline treatment is applied.

The Osmose Wood Preserving Company furnishes a pole inspection service to organizations desiring the inspection and preservation of their poles at the prescribed intervals. This plan is of value as poles are systematically inspected and those needing treatment are attended to, resulting in tangible savings in this period of high replacement costs.

Digger Operated from Power Take-off Shaft on Truck

POWER-DRIVEN pole diggers have long been recognized to be an important factor in the reduction of pole erection costs. While mechanical earth borers have been in use for a number of years, it is only recently that more economically constructed diggers have been developed. One type of considerable interest to telephone companies operates from a power take-off shaft on the construction truck. The auger and torque control housing is supported by means of the power winch and pole derrick on the truck. A telescoping hexagon shaft with universal joints provide a flexible arrangement whereby the digger can

Fig. 8—Using Tel-E-Lect pole hole digger to bore holes from across a ditch.

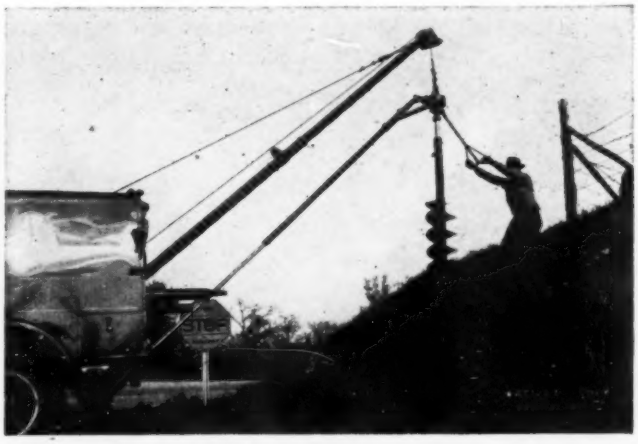


Fig. 9—Using Tel-E-Lect pole hole digger to bore a hole in the top of an embankment.

Crapo

Galvanized Steel* CABLE LASHING WIRE

AVAILABLE FOR PROMPT DELIVERY!

The new *Crapo* Galvanized Steel Lashing Wire (.091-inch diameter) now is available for almost immediate delivery. This improved wire has been developed especially for use with modern cable-spinning machines. It is manufactured from selected steel, carefully processed and heavily galvanized to conform, in every respect, to specifications approved by leading telephone engineers.

Crapo Galvanized Steel Cable Lashing Wire comes in neat, compact, thread-lay coils containing approximately 325 feet. Packed in cartons of 6 coils each.

Ask your Jobber or write direct!

*Crapo Cable Lashing Wire also is available in "Stainless Steel," .065-inch and .045-inch diameter.

INDIANA STEEL & WIRE CO.
MUNCIE, INDIANA

• • •

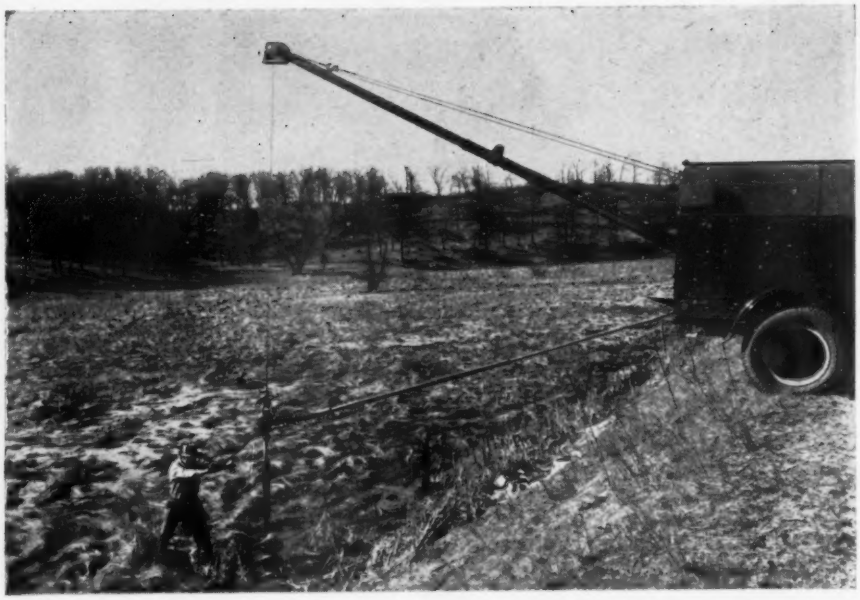


Fig. 10—Boring a hole in a low place from an embanked road.

be raised and lowered from different positions as shown in Figures 8 to 10. A safety shear bolt enables the digger to be connected to or disengaged from the take-off shaft.

The power take-off shaft extends from the truck transmission to the extreme rear of the truck frame as illustrated in Figure 11. This shaft is so installed as to permit the operator in the cab to run either the digger or the winch separately. The auger rotation can then be stopped while the digger is being raised or lowered. The winch line can be allowed to "free spool", thus paying out the winch line while the auger is boring into the ground.

The digger operates in this manner: The operator lowers the digger to the ground by use of the winch line and then engages the power take-off shaft leading to the digger. This starts the boring operation, and as soon as the auger has a good start, the winch line can be left to "free spool". The workman steadies the auger by use of the hand guide and can also control the angle at which he wishes the auger to dig. The auger is removed from the hole by use of the winch line and the dirt is thrown off by spinning the auger above the ground.

The digger can be obtained with the desired size of auger and in the most suitable type of power take-off equipment for the construction truck. The take-off equipment is furnished in kit form and assembly can be handled by a local garage mechanic.

Help The Other Fellow

MAYBE you've just licked a tough problem. Why not outline your problem with its solution, in a letter to the "How To Do It" department?

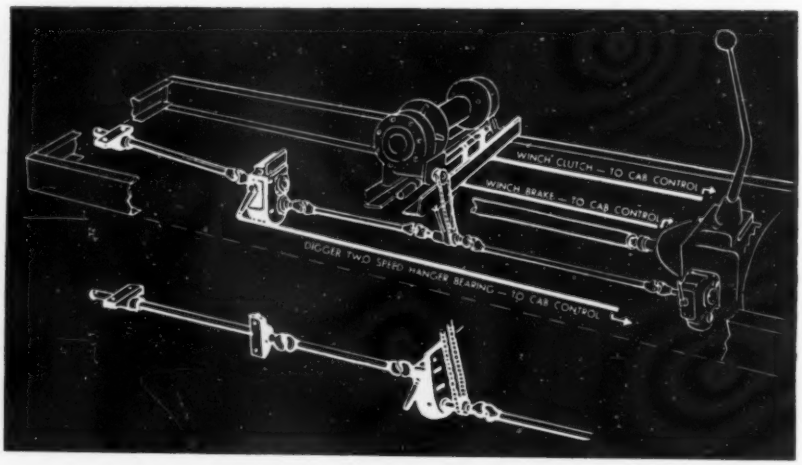
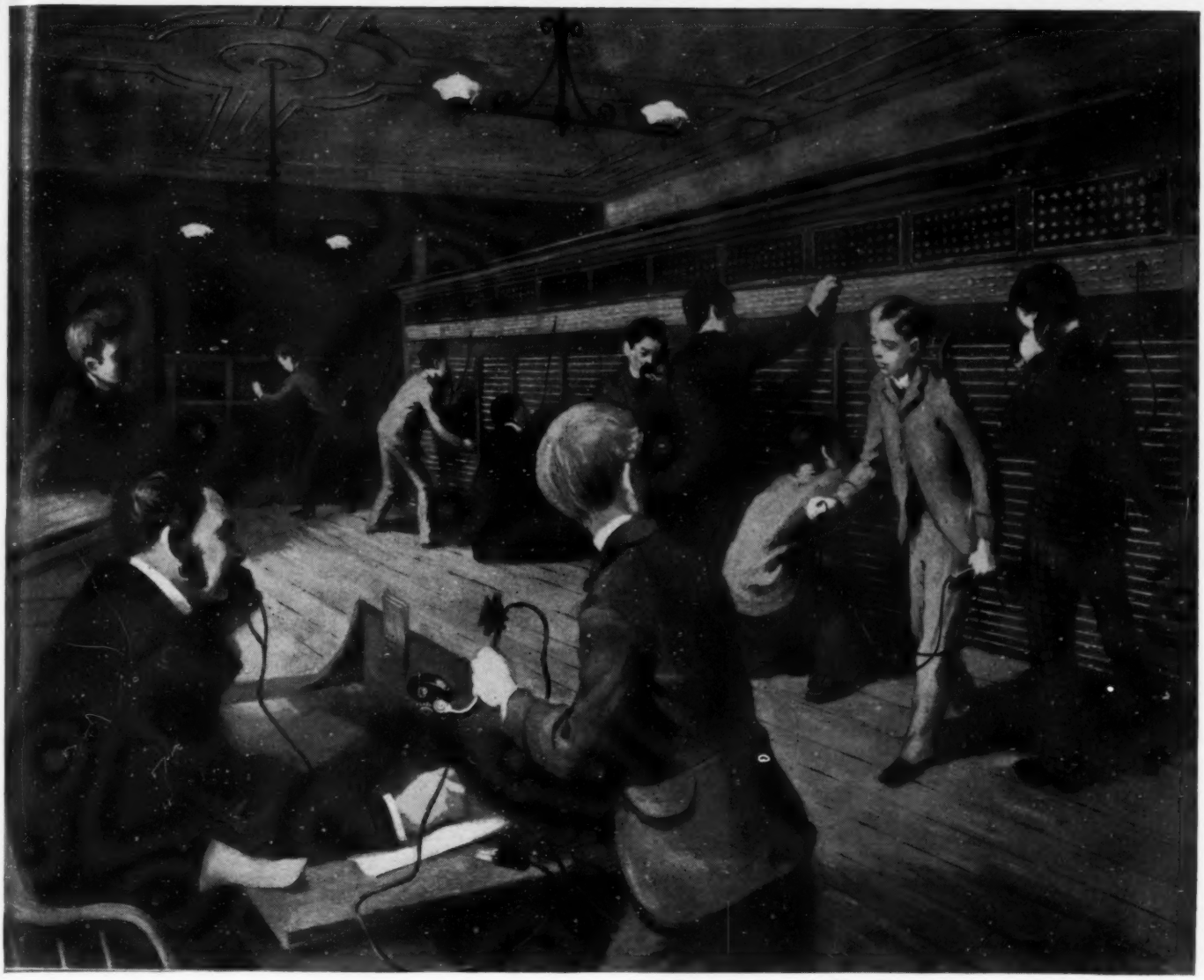


Fig. 11—One method of installing a power take-off shaft for the Tel-E-Lect pole hole digger; inset shows an alternative method.



Artist's conception of a New York City switchboard in the 1880's.

Since telephone operators were boys . . .

Back in the earliest days of telephony, Western Electric began making equipment for the infant industry. Through imagination and hard work, generations of telephone men and women have created a network that now connects nearly 40 million Independent and Bell telephones—that handles more than 160 million calls each day. Western Electric is proud of its long association with an industry which serves this country so well.

Western Electric

TELEPHONE APPARATUS AND CABLE

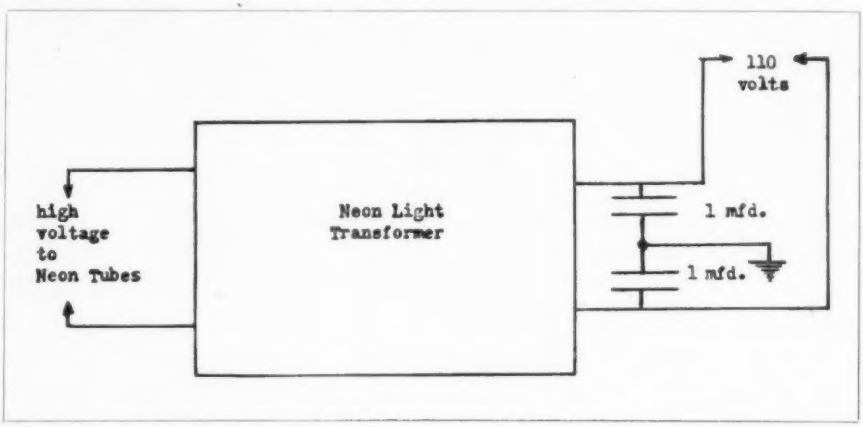
QUESTIONS and ANSWERS

EDITED BY

JAY G. MITCHELL

Q. One of our business subscribers installed a rather large amount of Neon lighting around the outside of his building for advertising purposes which sets up a very annoying interference in his telephone circuit when the lighting is turned on and to a lesser degree in the circuit of a residence subscriber about 250 feet away. The two circuits are individual lines, constructed of drop wire, are served from the same cable terminal, run parallel about two blocks and separate to the two subscribers. The drop wire to the business building where the Neon light interferes does not run parallel to any of the Neon tubes and is separated from them not less than 25 feet. The circuits are metallic and the telephones are Kellogg magneto wall sets with 1,600 ohm bridged ringers. Can you give us any suggestions as to how to eliminate the interference?

A. In the analysis of this inquiry it must be assumed that the Neon lighting equipment has been properly installed. This means that there are no cracked bushings, that the lead in wire to the tubes is **not shielded**, that all coils and wiring is securely fastened to its support and that the transformer supplying the Neon tubes is of adequate marginal capacity. With these assumptions it is suggested that the disturbance may be carried from the Neon transformer primary circuit into the supply circuit and that this supply circuit is in parallel with the two disturbed telephone circuits (such as would be the case if joint pole line construction had been used). If the drop wire serving the two telephones is of the parrallel conductor type I suggest that you substitute, for these two telephone stations, twisted pair drop wire from the cable terminal to the telephone. If this does not eliminate the interference it is suggested that you ask the Neon sign installer to connect two good one mfd. condensers in series across the **primary** of the neon transformer with a good earth connection between the two condensers. (*See sketch*)



If the Neon tubes flicker considerably, when they are flickering is the time that the disturbing field is apt to be set up, it is possible that the transformer is of insufficient marginal capacity. The Neon installer can test this by reducing the primary voltage at the transformer by an adjustable impedance to approximately 70 volts (when the normal voltage is 110). If the Neon lights do not begin to flicker when the primary voltage is so reduced the marginal capacity of the transformer is adequate. Finally I suggest that you replace the carbon block arresters on both the telephone circuits, both at the telephone and at the cable terminal, with sawtooth selfcleaning blocks and that you carefully check the earth connections at both locations and also at the cable terminal if it is of the protected type.

Please write in again and advise results. At long range little more than an informed guess can be made of the conditions causing your trouble.

Q. Enclosed please find a sketch or scheme of a problem on which I would like to get your advice. The sketch enclosed with this letter shows a six pair open wire lead extending to a point 4½ miles from the Central Office where it splits in three directions, two circuits continuing on in the same direction, two turning off at a right angle and two circuits extending 5½ miles from the dividing point into the space between the others. The question is can the two lines extending into the space between the others be phantomed successfully?

A. The answer is that such an arrangement is perfectly possible if the four wires of the two circuits proposed to be used for the side circuits of the phantom can be put into such shape that the resistance of each wire between the central office and the point at which the phantom circuit would terminate is about equal to the resistance of each of the other three. All joints will have, of course, to be checked and made perfect and it will be necessary to install a phantom repeating coil at the Central Office and also at the point which is indicated in the sketch as the location of the end of the phantom. If any of the circuits involved in the proposed phantom are paralleled by supply lines it will be necessary to work out a transposition scheme in order to avoid inductive interference with the phantom and its

JAY G. MITCHELL, has prepared a two-part article discussing "Kirchoff's Laws." The first installment of this valuable article will appear in the August issue of TELEPHONE ENGINEER AND MANAGEMENT.

two side circuits. Each phantom coil must be provided with its own effective arrester connected to a good ground and when these conditions are all met it is probable that the phantom circuit will be very satisfactory. I suggest that you write to your manufacturer and ask that a booklet regarding phantom circuits be sent you. Be sure and state that you are contemplating phantom circuit operation as there are many different types of repeating coils suitable for use in different ways. The most difficult part of establishing service over phantom circuits is the securing of constant equality in the two sides of each of two side circuits, transposing to eliminate inductive interference and protection of the phantom coils from damage by lightning or other extraneous currents. The proposed location of the outside end of the phantom circuit is 7½ miles from the Central Office and the inquiry states that there are no stations connected to the two side circuits which are proposed for the phantom. This is a very favorable condition and it is certain, on the basis of the facts supplied me, that this phantom circuit can be established and will give very good service.

Free Help With Questions

IF YOU'D like Jay G. Mitchell's technical and helpful opinion on some question, a postcard will bring you a reply in these columns. Or if you're in a hurry, please send along a stamped self-addressed envelope for immediate reply.

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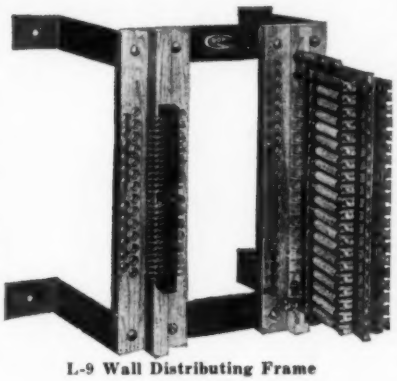

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National and State Association NEWS

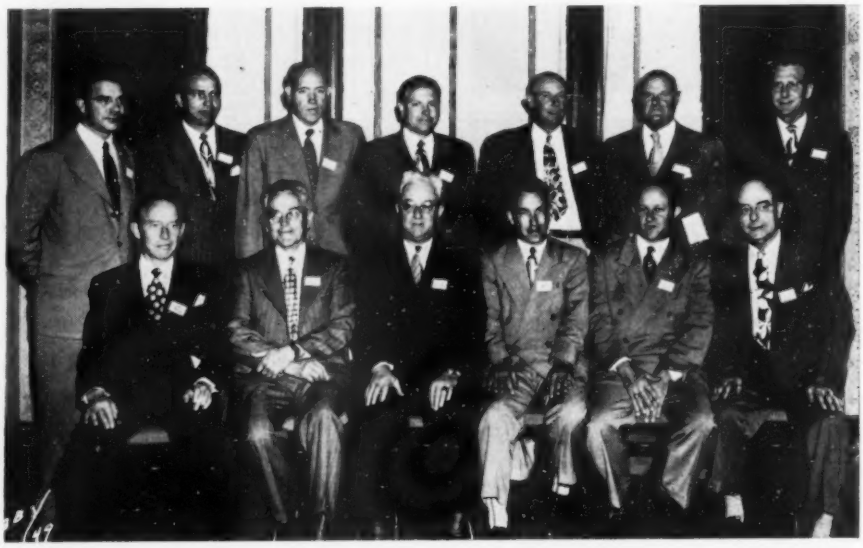
North Dakota Holds Annual Convention

THE 1949 annual convention of the North Dakota Telephone Association was held at the Gardner Hotel in Fargo on Thursday and Friday, June 9 and 10. This was the forty-first annual convention of the Association and one of the best it has had in recent years. Registrations totalled 99.

The convention was called to order by W. G. Matson, president of the association and owner of the Stanley Telephone Company, Stanley, N. D. After briefly discussing the activities of the association since its last meeting at Minot, N. D., he said that most of the problems of the various Independent companies and the Northwestern Bell Company in North Dakota are mutual. He then talked about the political aspects of the organized effort being made to destroy the Independent telephone business as "free enterprise". He said that the Poage Bill for rural telephone legislation looks harmless at first glance and appears merely to provide a subsidy for government loans for the purpose of encouraging the extension of rural lines, and that the telephone companies as a group "have a battle on their hands and the sooner we get into the fight the better."

Mr. Matson touched on the proposed minimum wage-hour law and explained how serious it could be to the smaller companies in particular. He hoped that Congress could be convinced that the requirements of the minimum wage-hour law insofar as the telephone industry is concerned should provide for an exemption up to 1,000 stations instead of 500 or less as it is at present.

Mr. Matson recalled that some years ago, telephone companies in North Dakota had an agreement with the electric power companies (with the backing of the Public Service Commission) which provided that if a power company built a line parellel to a telephone line, it was the power companies liability to pay for the material necessary to make the telephone line metallic. However, since REA has come into the picture, a law has been passed exempting the power companies from such liability. This, Mr. Matson stated, has done more to retard the extension of rural lines in North Dakota than any other factor.



Officers and directors of the North Dakota Telephone Association: (Seated Left to Right): CHARLES F. VAIL, vice-president; W. G. MATSON, president; A. J. McInnes, secretary-treasurer; and JOE WILHELMI, director; (Standing Left to Right): R. E. CLISBY, JOHN NILSEN, JOHN GOTTENBURG, G. B. BROWN, and R. R. BORMAN.

Clyde McFarlin, president of the Iowa Telephone Association talked on the subject, "The Future of the Small Telephone Company." Most of his talk presented the telephone industry's views regarding the Poage Bill and the minimum wage legislation before both the Senate and House of Representatives. He graphically described sessions he attended in Washington where he appeared before Congressional committees in connection with hearings on wage-hour legislation. "I think those two bills," he said,"—"Poage and Minimum Wage-Hour Bill could kill the small telephone companies."

Mr. McFarlin urged that the small companies in particular strive for better management, more planning, more effort, and in so doing could forestall some of the difficulties ahead. He mentioned that when small companies let their plants wear out and make no provisions to rebuild them and furnish good service, they themselves are to blame for the difficulties they are in because the general public is demanding better service and is usually willing to pay for it.

An exceedingly interesting part of Mr. McFarlin's talk was that portion devoted to the work being done by the "Small Company Committee" of the Iowa Association. He reported in detail the experiences of the newly organized Emeline and Iron Hill Telephone Company in Iowa in establishing a community dial system serving about 140 customers in a sizable rural area which had been without service about 15 years. The area it serves is about nine miles from the nearest town and had not had telephone service. Folks in the area had started writing to Congress

CLYDE McFARLIN, president Iowa Independent Telephone Association, Montezuma, Iowa, addressing the convention.

and to various newspapers regarding the need for telephone service. It was then that the small company committee of the Iowa Association arranged for a survey of the territory and organized a new company. The new company succeeded in raising about $30,000 and the outside plant was built largely by its own efforts.

Stuart H. Kelley, traffic operations supervisor, Northwestern Bell Telephone Company, Omaha, Neb., discussed "What Traffic Management Produces." He said that telephone companies deal with many things but mostly with people. The people we serve and the people who operate our plant.

Mr. Kelley stressed that the basic item which telephone companies produce is the *completed call*. "It is the end product," he said, "but with it goes a wealth of tone and quality in the way it is produced—the friendly, capable, interested, personalized attitude of the operator handling the call. Back of the completed call comes the construction of the plant, the installation of the customer's telephone, working an order through all of the records and the hiring, orienting and training of all employee in all departments, all of which builds up to *the completed call*."

Mr. Kelley stated that the industry is handling four requests of a customer "for our product for every three times we produce a conversation on a call for another telephone in the local calling area."

"Less than fifteen years ago," he said, "out of every six requests from customers we could produce five calls. Production, therefore, is down from five out of six to three out of four. Part of the reason for this is the

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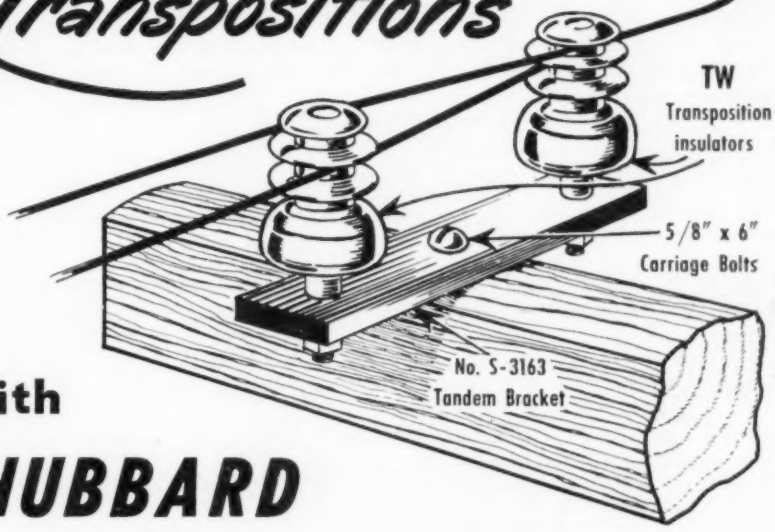

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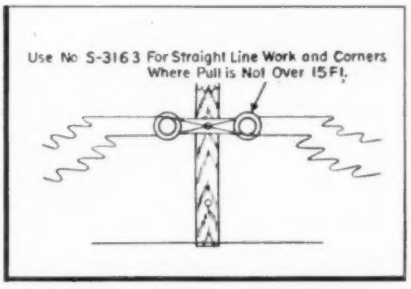

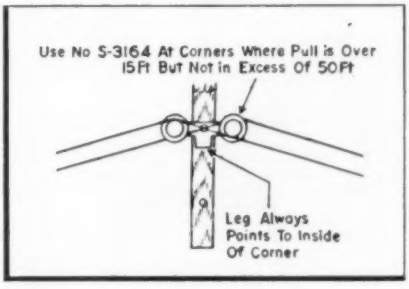

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present high development of two and four party service."

He stressed the need for more effort to convince telephone users to follow the golden rule of waiting as "long for your party to answer as you would want him to wait for you."

John L. Nilson, manager of the Nome Telephone Company, Nome, N. D., talked on the subject, "Experience and Problems of the Rural Telephone Company". He particularly emphasized the need for closer cooperation of all companies and urged the start of a campaign to get more North Dakota companies to join the Association. He also stressed the need for better understanding and cooperation in connection with telephone problems caused by REA development.

Presiding at Friday's session was Charles Vail of Milnor, N. D., vice president of the Association. The first speaker on that day's program was R. E. Clisby, district manager, Central Telephone Company, Devils Lake, N. D.

The next speaker, C. W. McDonnell, president of the North Dakota Public Service Commission, spoke on the subject, "Rural Development in North Dakota in the Last Five Years."

He stated that "according to the reports to the Public Service Commission on rural service development in North Dakota during the last five years, there was a net gain of 5,319 rural telephones in the state."

"Of this total," he said, "3,308 were reported by the Northwestern Bell Telephone Company and the smaller companies reported 2,011."

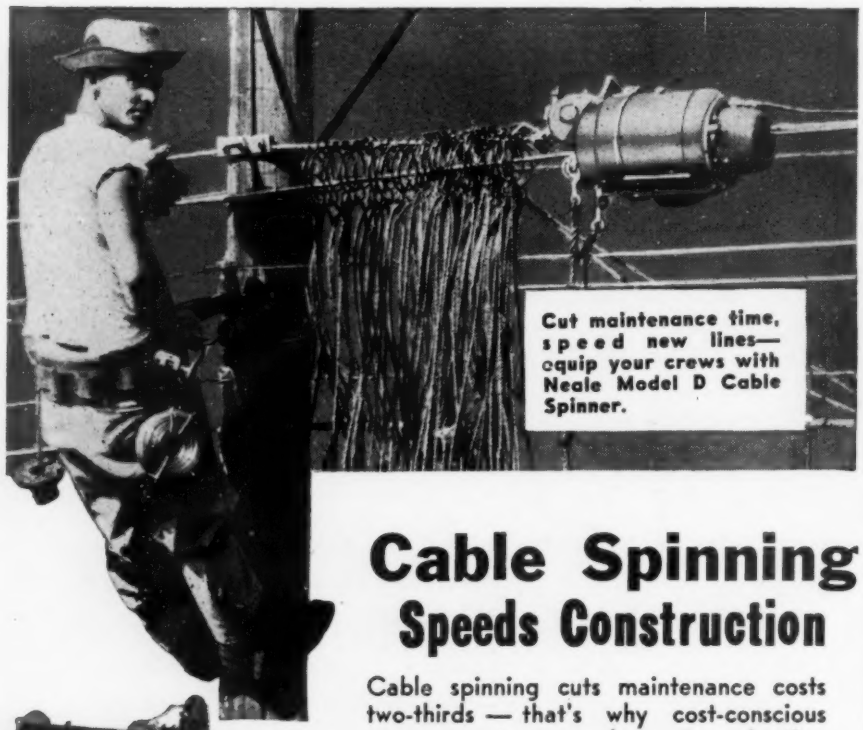
He considered the increase in rural development substantial and said that the Northwestern Bell Company showed a larger net rural gain, due mostly because that company has been able to get the money to extend rural plant, providing they could get the necessary materials. He mentioned that the small companies just can't get the money to make rural extensions even though they are just as anxious to expand in rural territory as is the Northwestern Bell.

R. E. CLISBY, district manager, Central Telephone Company, Devils Lake, North Dakota.

Clinton J. Johnston, area engineer, Northwestern Bell Telephone Company, Fargo, spoke on "The Engineering Problems of Small Exchanges." He stated that there are 248 Independent telephone companies in North Dakota of which 225 or about 90% have less than 250 stations. The Northwestern Bell Company in North Dakota has about 40 exchanges with less than 200 stations and another 40 with less than 500. All of which indicates that the Independent and the Bell Companies have many problems in common in meeting the challenge of service to the small community.

Most of Mr. Johnston's address was devoted to the problems faced when an owner of a small exchange

(Please turn to page 52)



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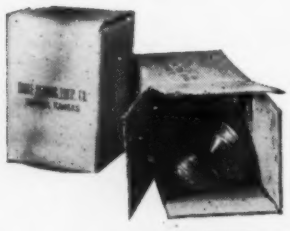

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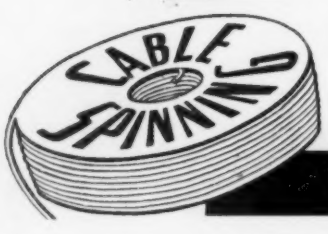

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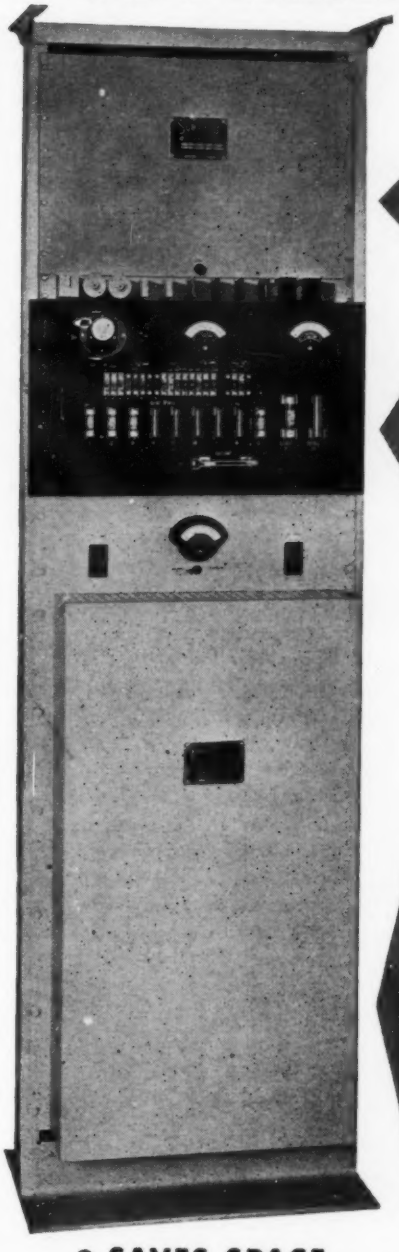

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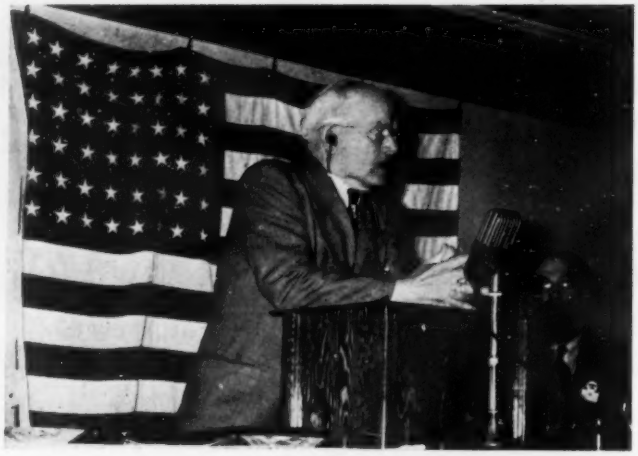

J. C. CROWLEY, JR., secretary Minnesota Telephone Association, St. Paul, speaking at the North Dakota convention.

CLINTON J. JOHNSTON, (left) area engineer, Northwestern Bell Telephone Company, Fargo, and CHARLES VAIL, Milnor Telephone Company, Milnor, N. D.

has a rebuilding program to contend with. He stressed that before a major rebuilding program is undertaken it is necessary to carefully consider the exchange boundary since the expansion of territory after a plant is installed can be very costly.

J. C. Crowley, Jr., secretary of the Minnesota Telephone Association devoted most of his talk on "Remarks of a Pioneer" to a discussion of the need for protecting the telephone industry against unfavorable legislation such as the Poage Bill and the Wage-Hour Law. He stressed the need for doing everything possible to assure the continuance of free enterprise in our country. "The conveniences we have in our household and on the farms have been all due to American ingenuity," he said, "but we still have some men in Washington who would dispense with free enterprise."

The last speaker on the program, J. H. Condon, secretary-treasurer of the North Dakota Association of Rural Electric Cooperatives, discussed "R.E.A. and Telephone Relations", and made a plea for better cooperation and understanding between REA and the telephone industry.

He stated, "We are keenly interested in your progress and well being. We would like to see telephone service extended to every farm we serve *and we feel that you are the ones to do that job.*"

Mr. Condon said he was on the program on a "mission of good will" and pledged that the association he represents will do everything it can to cooperate with the telephone companies in the state.

After the Nominating and Auditing Committees made their reports, there was a meeting of the Board of Directors. R. E. Clisby of the Central Telephone Company, Devils Lake and John Gotteburg of the Red River Valley Telephone Company, Mayville, were elected to the Board of Directors replacing A. R. Brooks and C. O. Field whose terms had expired. The officers of the Association are listed as follows: President, W. G. Matson, Stanley; vice president, Charles Vail, Milnor, and secretary-treasurer, A. J. McInnes, Fargo.

Directors are: R. R. Borman, Fargo; G. B. Brown, Enderlin; R. E. Clisby, Devils Lake; John Gotteburg, Mayville; W. G. Matson, Stanley; John Nilsen, Nome; Charles Vail, Milnor; W. R. Williams, Minot, and Joe Wilhelmi, Starkweather.

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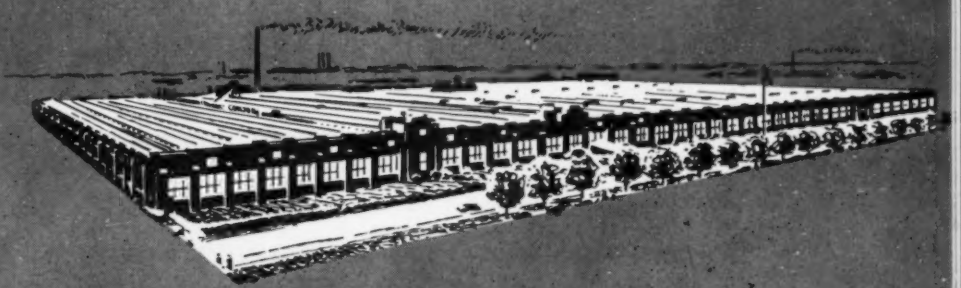

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Toll Ticketing

(*Continued from page 35*)

call. The computation of the total charge thus requires a consideration of 12 different toll rates for each call.

Some AB calls may be completed over direct trunks to terminating exchanges, while others are more conveniently reached via tandem trunks through one or more exchanges in the network.

The design of an Automatic telephone switching system to meet the conditions just stated must therefore be based on a consideration of the following essential features:

(1) The system must recognize from the number dialed whether the call is intended for—
  (a) A local subscriber,
  (b) A subscriber who can be reached only over long distance trunks, or
  (c) A subscriber reached via the AB or short haul toll trunk network.

(2) The system must distinguish between a local rate subscriber and one paying the extended rate.

(3) The system must—
  (a) It must route all long distance calls to an L. D. operator.
  (b) It must permit extended rate subscribers to dial any local rate subscriber as well as any subscriber located within the area designated as Extended Area, without use of toll ticketing equipment, and it must route through the toll ticketing equipment calls by extended rate subscribers to AB toll points outside the extended area.
  (c) It must route through automatic ticketing equipment all AB toll calls made by either local rate or extended rate subscribers and must apply the proper rate subscribers and
  (d) It must route all L. D. or AB toll calls from pay-stations through an operator.

The accomplishment of all these functions in a rapid and accurate manner has been the objective of engineers and designers who conceived the plans. The reduction to commercial practice is being urged by progressive managements who recognize the mutual value of the service to the telephone using public and to telephone operating administrations. Before attempting to describe the operation of the Strowger Automatic Toll Ticketing System, we may find a little back-ground to be helpful, and because of the number of possible variations of operation and the possible combinations of the various units of apparatus which may be used, it seems desirable to confine our discussion to the operation of the equipment as it will function in Sunland. For this reason, let us examine for a moment the relationship of Sunland to the metropolitan area of Los Angeles and the method of interconnecting the various exchanges involved.

The map shown in Figure 1 represents the Los Angeles metropolitan area. Sunland is in the northern section labelled Tujunga. Figure 2 shows the Sunland exchange and the several exchanges to which it connects directly. Many of the points not shown are reached through the tandem exchange in Los Angeles shown at the bottom of the map. This tandem exchange is operated by the Pacific Telephone and Telegraph Company. For tandem operation the Sunland equipment is capable of completing calls through tandem exchanges of either the step-by-step or cross-bar type although initially the tandem office involved will employ step-by-step operation.

You will note that each of the exchanges to which Sunland connects has been given an exchange name which makes it possible to distinguish one exchange from all other exchanges in the area. The importance of this feature will be recognized when you remember that the purpose of the Automatic Toll Ticketing System is to eliminate operators and this means that Sunland subscribers should be able to dial selectively any subscriber in the area served by an Automatic telephone exchange. There can, therefore, be no conflicts in office codes which means no duplication of combinations of the first three digits of the listed directory number which always includes an office name.

(*To be concluded in the August, 1949, issue of TE&M*)

GraybaR RECOMMENDS

Crapo wire and strand

HTL-135, a telephone line wire of extra-high tensile strength, is extensively used in new construction. Spans of 450 feet in medium loading mean savings due to fewer pole structures. Crapo galvanized strand combines the strength of steel with the weather-resistance of rustproof zinc. Graybar can furnish Crapo wire or strand for every purpose.

Hubbard hardware

Hubbard transposition brackets, house brackets, crossarm braces, machine bolts, lag screws, guy clamps, ground rods, expanding and screw-type anchors all help simplify your construction problems and insure long life of your pole lines. You're *sure* when you "hang the load on Hubbard hardware," stocked by Graybar.

ORDER ALL YOUR POLE-LINE SUPPLIES VIA GRAYBAR

Graybar, pioneer supplier of pole-line items to the telephone industry, has always selected only proven products of leading manufacturers. Your local Graybar Representative is anxious to make your order his personal responsibility – he'll see that you get prompt deliveries. In addition, the experience of a Graybar Telephone Specialist is always available to help you solve any unusual technical problems. Besides telephone supplies, Graybar can provide everything you need for wiring, ventilation or lighting your building – and "intercom" systems to speed your office work. *Graybar Electric Company, Inc. Executive offices: Graybar Building, New York 17, N. Y.*

4948

IN OVER 100 PRINCIPAL CITIES

New Capital Markets

(Continued from page 26)

istic. Whether for bonds, preferred stocks or common stocks the offering prices must be related to the company's earnings and earnings prospects, and they must be reasonable in comparison with prices of other new offerings or of comparable issues in the trading markets available at the time.

And earnings to support the new issues must be adequate, must show ample provision for bond interest and for dividends on preferred and common stocks. Unfortunately earnings on capital invested in the telephone industry, especially the earnings of the independent companies, have been generally on the down grade for about three years. For the class A independents as a group, net operating income in 1946 on a combined rate base computed as net plant plus materials and supplies and cash working capital was 6.95%, and in 1947 it was 5.92%. The 1947 figure is too low, even as an average, and many of the companies earned much less. Average figures for the independents for 1948 are not yet available, but many of them showed earnings in that year lower than in the year before. A study of the 1948 reports, and of the interim 1949 figures available at this writing, shows that while some of the larger companies did fairly well many of the smaller units realized lower net operating incomes than in the preceding twelve months, and in amounts which, calculated against their higher plant values, worked out to still lower rates of return. And even some of the larger companies have reported inadequate earnings; Illinois Bell Telephone, for example, reduced its June 30 dividend to $1.15 from the $1.50 quarterly previously paid; its per share earnings in the first quarter this year were $0.86. There is of course only one remedy for this state of affairs, rate increases.

Rate Case Approach

APPLICATIONS for rate increases are a problem to the smaller telephone companies because of their cost, especially if the application has to be accompanied by or based upon evidence of plant values. But there is another approach that can be used in some states for emergency purposes; that approach is based on capitalization and capital issues. A state commission may well permit this where a company's balance sheets indicate that it is not overcapitalized. A survey of the Class A independents shows that for most of them the aggregate amount of their capital issues, that is bonds, notes, stocks, et cetera, is less than the original cost of their plant less book depreciation plus reasonable allowance for materials and supplies and cash working capital. At the end of 1947 the aggregate rate base for 213 Class A independents, computed as outlined above, was $403,804,000, while the aggregate of their capital issues was $388,486,000. In the individual case a commission would be realistic in granting such rates as would provide interest on a company's bonds and other debt and dividends on its preferred and common stocks, with something over for reinvestment in the business.

This approach through invested capital rather than through book value of physical property is not new. Years ago a concurring opinion writ-

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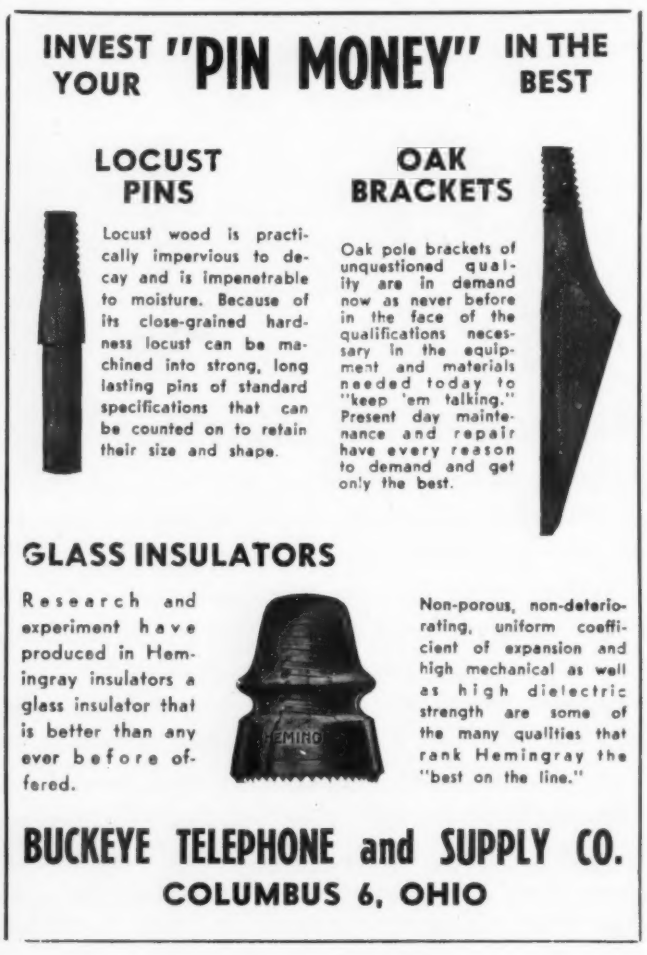
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LOCUST PINS
Locust wood is practically impervious to decay and is impenetrable to moisture. Because of its close-grained hardness locust can be machined into strong, long lasting pins of standard specifications that can be counted on to retain their size and shape.
OAK BRACKETS
Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.
GLASS INSULATORS
Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.
HEMING
Non-porous, non-deteriorating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."
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ten by Judge Brandeis in the Southwestern Bell Telephone case (262 U. S. 276, May 1923) pointed out that "the thing devoted by the investor to the public use is not specific property, tangible and intangible, but capital embarked in the enterprise. Upon the capital so invested the Federal Constitution guarantees to the utility the opportunity to earn a fair return". And the opinion of the U. S. Supreme Court in the Hope Natural Gas case in 1944 stated in part: "From the investor or company point of view, it is important that there be enough revenue for operating expenses and also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."

We have here a formula for determination of a "fair return" from the operation of utility property, a formula based on capitalization and capital issues, in particular on the rate of dividend which the company is entitled to earn and pay on its common stock. Note the use of the word "commensurate". This does not mean of course "the same as", or "equal to" or "the equivalent of." It implies an over-all rate of return on invested capital, of such amount that on a similar distribution of capital issues, say bonds, preferred and common stock, a like dividend on common stock could be earned and paid.

This is the law of the land. It has not been modified by any later decision of the Supreme Court. Some state commissions, however, do not recognize it in their proceedings and orders, some of them cannot do so because the laws of their state provide specifically for other methods of rate determination, and some of them adhere to rules of their own which exclude consideration of earnings on invested capital. Nevertheless the field is broad enough to suggest that some discussion of the point with the respective commission or its staff would be a wise preliminary to the filing of an application for rate increases by an independent telephone company.

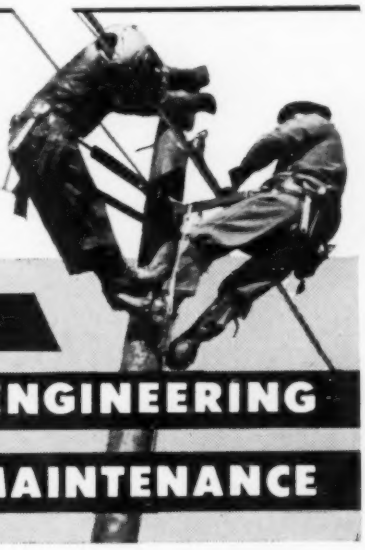
Citation of court decisions in this place is not a suggestion that officials of a telephone company, or any other layman, can tell a commission what the law is, or what the company is entitled to earn according to law. Emphatically not. But the company's legal counsel may do so, if he believes that the move is appropriate. The company's presentation in most cases should be based on its needs, not its legal rights.

New Bonds and Debentures

THE LARGEST new offering of corporate bonds or debentures ever made in this country was that of American Telephone and Telegraph Company in May and June. This was to stockholders and carried the right to buy capital stock of the company, beginning September next, at $130 per share, delivering these debentures at 100 in part payment. Of the $394,372,000 principal amouunt of debentures offered, more than $385,000,000 was taken by stockholders or by those who purchased their rights. The new issue was a ten-year 3.125% offered at 100; it was traded on a when-issued basis initially at 109.25, never sold lower than 106.375 and at this writing is around 107. The transaction must be acclaimed an outstanding success.

The offering price, coupon rate or market price, however, are not measures of the cost of the money to the company. The buyers of these bonds, most of them, were not buying a 3.125% investment, which at the current 107 shows a net yield of 2.34%;

(*Please turn to page* 58)



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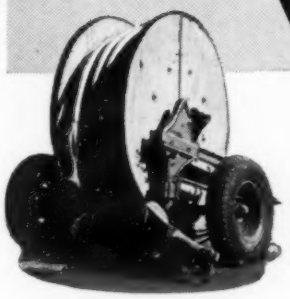

Whatever your problem . . . wherever it may be . . . we can help you plan, erect, repair or maintain your outside telephone plant.

Years of on-the-job experience working with independent telephone companies from coast-to-coast, the finest and most modern equipment, PLUS the know-how of trained and experienced crews assure you efficient, economical, long-lasting service.

Our engineers have the background and practical experience to help you plan and engineer your job and to assist you in obtaining critical materials.

All work is done to A T & T specifications or equivalent unless otherwise requested.

So, why not put this experience and skill to work for you—call us today! Let us give you time and cost estimates on construction, maintenance or repair jobs. No obligation! Do it today!

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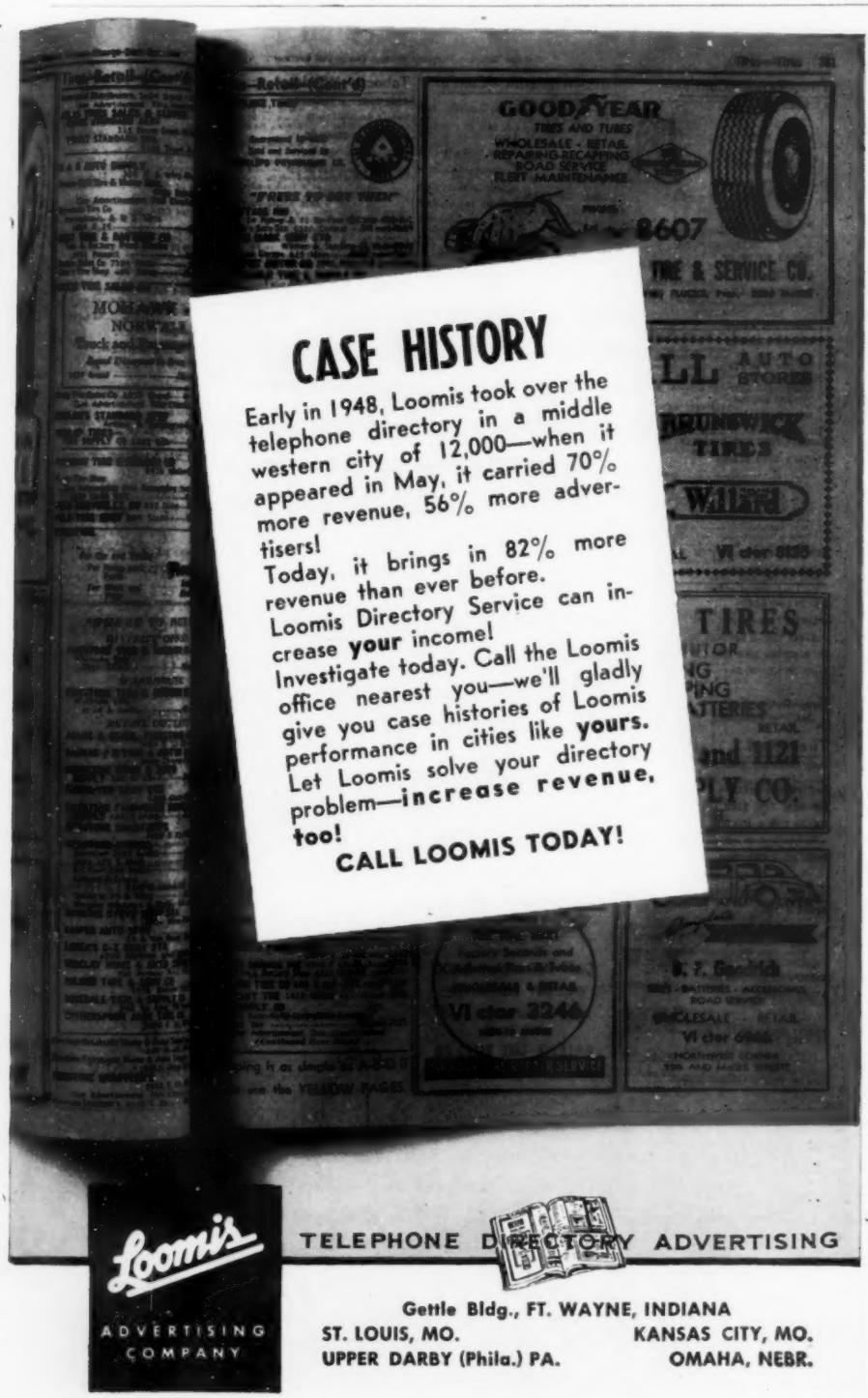
most of these buyers are really buying the capital stock or the right to buy it. To the extent that the debentures are used in the purchase of capital stock, the cost of the new capital to the company will be nearly 7% (130 for a $9 dividend) the highest price it has paid for money for many years. Nevertheless, all things considered the operation was very satisfactory from the company's viewpoint, for to the extent that the debentures are not converted the money cost will be only 3.125%.

Most of the bonds and debentures listed in our Table Two were sold without unusual difficulty, the sole important exception being the New England Telephone & Telegraph 3% 1974 offered on March 24. Two weeks later, on the syndicate expiration date, only about half these debentures had been placed, and the syndicate was then extended for two weeks. It took really hard work to get these debentures out of the hands of the underwriters. By contrast the similar offering the following month of Bell Telephone of Pennsylvania 3% 1974 found a quick sale at a price a full point higher. The yields to maturity respectively were 2.95% and 2.90%.

Reasons are not far to seek. The New England company's capitalization was heavily loaded with debt, 58% of the total, while the Pennsylvania company's debt was 34.6%. Interest and other charges were earned by the New England company last year 2.02 times, while Pennsylvania earned its charges 3.74 times. In both cases the new issue merely refunded or funded debt already on the books. It is true that out of New England's total $225 million of debt some $90 million was owing to the parent company, and if the parent were to accept payment in new capital stock New England would find itself with a much lighter burden of debt. But the parent company in this case owns only 69% of the New England capital stock, balance is in hands of public and currently selling in the market at around 30. The shares are $100 par. The quarterly dividend payment was reduced last March 31 to $1 per share as against $1.25 previously paid. Moreover the New England company had been less fortunate in obtaining arte increases than Bell of Pennsylvania. Obviously any financing through sale of new capital stock of New England poses almost insoluble problems.

The trading markets in utility preferred stocks have continued firm, few of the issues made during the last year or so are now selling lower than their offering price, many of them are selling higher. But other prospective issuers, or their bankers, have been afraid of this market, loath to assume the risks involved in sponsoring new offerings. As a result the dollar value of such offerings in the first half of this year was substantially less than it was last year. However, the few telephone offerings made were successful and at comparatively favorable prices; most of them were placed locally.

At the low rates of return currently being earned by many telephone companies, the issuance of preferred stock at a net dividend cost of 5.00% or higher is of doubtful advantage to the common stockholder, perhaps none at all. It may be a useful evpedient for the purpose of avoiding dilution of voting control, where the new preferred can be made non-voting. And where the burden of debt is already heavy enough, and sale of new common stock is not feasible for one reason or another, sale of some preferred stock is advisable. But as the preferred money cost rate approaches the over-all rate of return on the total invested capital the common stockholder finds less margin for trading on his equity.—THE END.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Early in 1948, Loomis took over the telephone directory in a middle western city of 12,000—when it appeared in May, it carried 70% more revenue, 56% more advertisers!
Today, it brings in 82% more revenue than ever before.
Loomis Directory Service can increase your income!
Investigate today. Call the Loomis office nearest you—we'll gladly give you case histories of Loomis performance in cities like yours.
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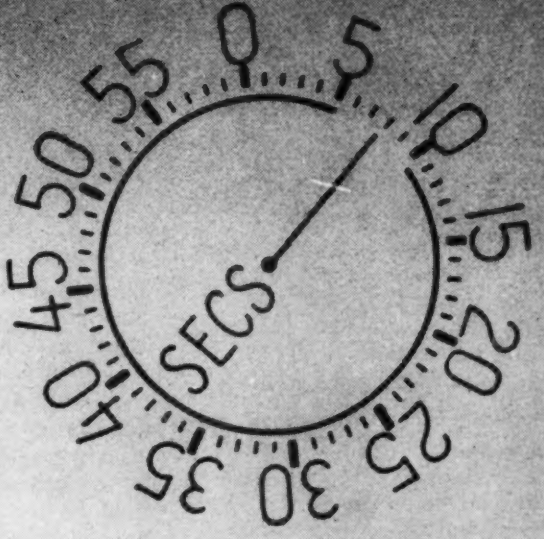
Every second counts

WHEN

CALCULAGRAPH figures toll time!



Every minute and every second of every toll message is accurately computed by CALCULAGRAPH. A permanent printed record is made of each message individually with no calculating or pencil work required of the operators at any time. Modest initial cost makes a CALCULAGRAPH a paying investment right from the start in any exchange—large or small.

CALCULAGRAPHS are made in several models and are adaptable for any type of switchboard installation. When busy spots develop at certain hours, CALCULAGRAPH pedestal portable mounting can be employed to speed message handling efficiently and accurately. Complete catalog information is available on request written on company letterhead.

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Portable Compressors Prove In As Time And Money Savers

Kenneth Kinser
Gordon Smith Mfg. Co.
Bowling Green, Ky.

LINE construction crews and others have long realized the advantages of using a portable compressor, not only in getting the job done efficiently and effectively, but they also know that compressed air is truly a time and money-saver, since for some applications one or two men using pneumatic tools can do the work of a half-dozen men with hand tools—and in less time.

Not only have line construction crews experienced these excellent results, but many individuals and concerns also have shared this advantage. If one could count the total number of portable compressors at work everywhere on important projects, he would quickly gain respect for their versatility and work-loving qualities.

To some, the name "Portable Compressor" merely means equipment used as a source of compressed air. To others who are familiar with this type of equipment the term means much more than a source of supply.

Those individuals or concerns who have need of compressed air equpment will quickly judge a compressor as to its maneuverability, especially in cases where this factor is essential, as in line construction work. The maneuverability of a portable compressor depends chiefly upon the lightweight construction of the machine, and if it is built so it may be made available to the hard-to-get-to places with a minimum effort in the shortest possible time.

In addition to whether or not a compressor is portable to the extent required, one should also consider the serviceability, the initial cost, stamina, and operating cost. These are important features to be considered, and upon them will depend whether or not your portable compressor will meet all the needs required of it.

The compressor user who figures for profit must keep a weather eye on today's maintenance costs. It is always desirable to keep the operating costs of your portable compressor low enough to spell *economy* on any job.

Another factor to be considered is maintenance of your machine. An ideal compressor should be equipped with standard parts that are easily available, for an out-of-order compressor may mean costly delays until the machine can be repaired.

Among a variety of such portable compressors that can be obtained is the trailer type, two wheel, gasoline powered machine, equipped with tow connection and hitch for towing at normal automobile speeds. This type compressor is light enough in construction so that it may be readily detached from the towing vehicle and drawn or pushed by hand into remote off-the-highway places where towing would be impossible. This in itself is an advantage not offered by heavier constructed compressors.

This type portable compressor is usually of the smaller capacity variety and is used with a medium or light weight pneumatic tools where heavier tools are not required.

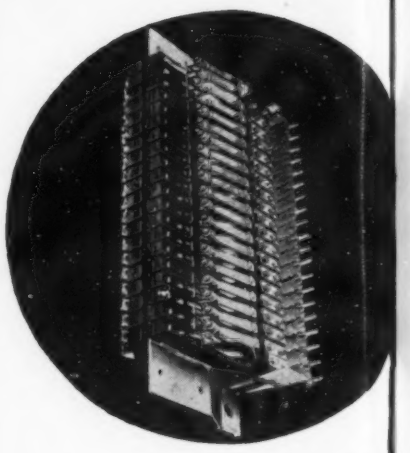
For the individual or concern confronted with the problem of using pneumatic tools in rugged terrain, and when a good deal of travel is involved from job to job, one can naturally assume that a good reliable portable compressor is the solution.

Denton, Texas, Answers Rate Adjustment Request

The City Commission, Denton, Texas, has made an offer to the Texas Telephone Co. in answer to a request by the company for a rate increase.

The commission offered to grant the company a 25-year franchise if the firm will start construction within the next 60 days of a new building and a fully automatic dial system, to be completed within two and one-half years.

Officials of the telephone company have pointed out that the firm has been operating in Denton since 1943 without a franchise. Current rates were set by a federal court injunction in 1920 and no increase has been granted since that time.

STROMB

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In operation, it opens the switchboard ci
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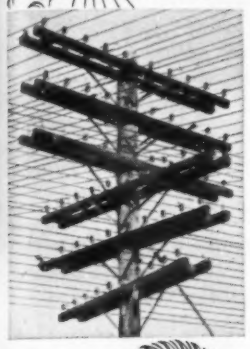


The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.

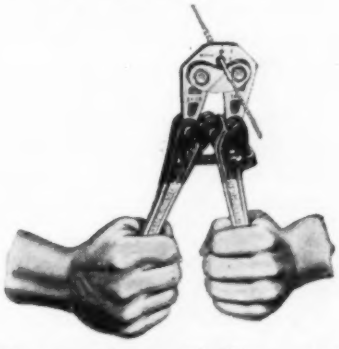
make line splices faster with nicopress splicing sleeves . . .

For line splices that *can't* pull out, made in half the time, specify *Nicopress* Splicing Sleeves!

Nothing could be simpler than making a splice in a jiffy with *Nicopress* equipment. Here's all you do:

1. Clean the wire end

2. Insert wire in sleeve



3. Compress sleeve with *Nicopress* tool

The result is a splice that will hold up for the life of the wire. Specify *Nicopress*—the finest in Splicing Sleeves!

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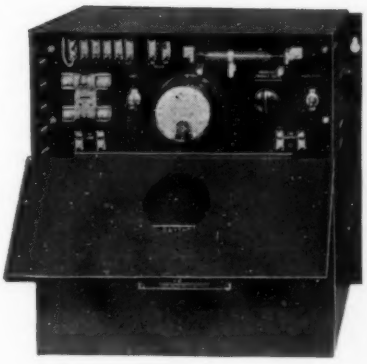
A small storage battery floated across the terminals of a Raytheon Recticharger provides closely stabilized DC voltage . . . longer battery life . . . and improved operation of manual or automatic telephone systems.

These are *proven* advantages that stem from exclusive design and long service to the telephone industry.

When replacing, expanding, or modernizing switchboard equipment, utilize Raytheon's extensive field experience and complete line. Available from 1.0 to 24.0 amperes with either 24 or 48 volt output.



*Reg. U. S. Pat. Off.

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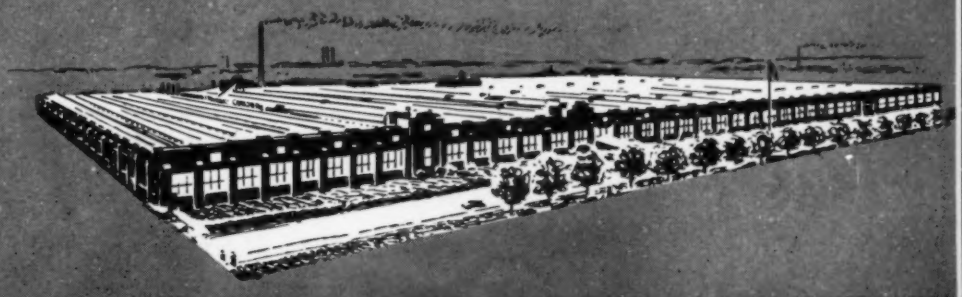
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



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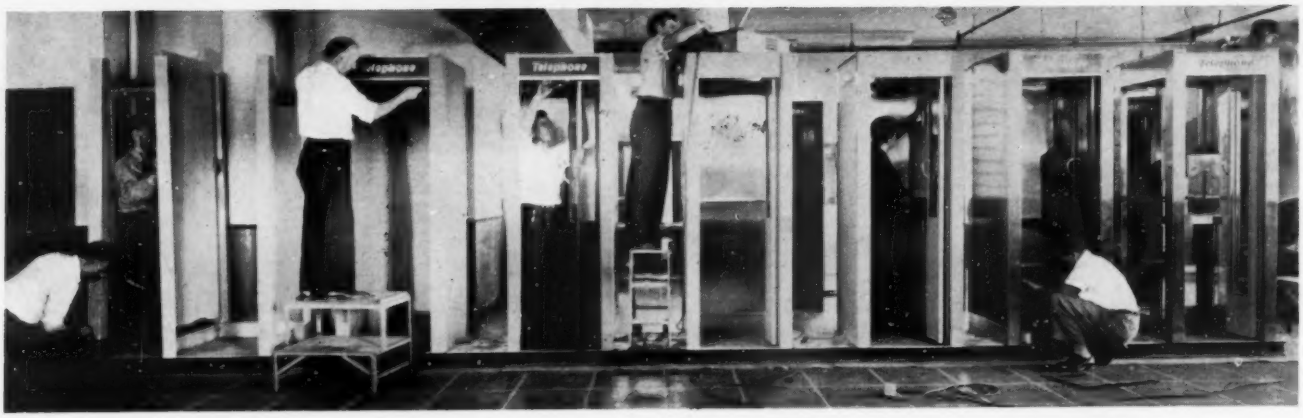


View of Sherron production line where employees work under the most favorable conditions.

Sherron Telephone Booths Feature Beauty — Serviceability — Acoustic Efficiency

UBIQUITOUS is the word for telephone booths. In town and country, in city and suburb the public telephone booth is everywhere and inescapable. It is as familiar as the fire hydrant and just as lacking in esthetic appeal.

It is not irregular to suppose that anything so public would be vested with a more than passing degree of architectural inspiration. In our bright, brave new world that is making history with the discovery, invention and use of wonderful, new materials, telephone booths are still, in the main, products of wood.

Lone innovator in correcting this condition is the Sherron Metallic Corporation. This Brooklyn, N. Y. manufacturer, with an eye for functional booth beauty, an ear for acoustic efficiency and a realistic conception of serviceability is designing and building paystation structures that are shining examples of what can be done with metal by itself and in combination with some of the newer materials.

Most recent of the Sherron telephone booth developments is a sparkling, stainless steel and wire glass model. The manufacturer states that although the new booth is intended for outdoor locations, since it will not rot, rust or decay, the booth has everything to recommend it for even the swankiest of indoor sites. The wire glass panels afford a view of the interior from all sides and thus encourage complete patron confidence.

It is in the fabrication of the all metal booth that the Sherron company has won recognition as a stylist with hard headed know-how.

One of the new all steel products is what company officials term "the budget booth." This is a prefabricated job and can be supplied knocked down for setting up by the purchaser. Interlocking parts make assembly a relatively simple matter, even for an inexperienced person using merely a screwdriver and a wrench. Double wall construction, with sound insulating material between the walls, provides satisfactory acoustic efficiency.

The Sherron standard acoustic steel booths are known the world over. These come in three different models: furniture steel; stainless steel; stainless steel and plastic. Perforated acoustic wall linings are featured in all three.

Sherron telephone booths are characterized by good reflective value, owing to high, light-reflecting color combinations in the furniture steel products and the mirror-bright quality of the stainless steel booths.

While these virtues point up patron convenience and comfort, Sherron booths have equal merit from the dollars-and-cents viewpoint of the buyer. The manufacturer states, "they present no maintenance problem and will seemingly last forever, or pretty close to it."

The proficiency of the Sherron organization in designing and building metal booths stems from a diversified experience in sheet metal fabrication. The block-long, white building which houses the Sherron plant is a clanging bee hive of metal working activity.

Here, in one huge department of the factory, is row on row of telephone booths being assembled. Elsewhere, complex electronics devices are being manufactured. On one of the floors are two air-conditioned laboratories, one of them an electronics lab., the other an electro-mechanical lab. On another air-conditioned floor is a complete television transmitting studio, gleaming with the highly polished stainless steel transmitters, control desks, consoles and the other equipment of a realistic telecasting station. This is a F.C.C. licensed experimental station for the purpose of conducting research in and developing television techniques.

Impressive as any feature of the Sherron operation is the functional integration of the various departments. There is no waste, no lost motion. The entire atmosphere is one of efficiency and order. One step follows the other with precision and dispatch. Timers and automatic controls ward off errors and delays. Overhead handling equipment whisks large units from one section of the plant to another with the smoothness of an expertly executed double play.

Coffing Hoist Equipment Saves Expense & Tempers

There is one thing that management and labor of the vast public utilities systems agree upon—"that man Coffing has certainly been a blessing to the utility industries."

They're talking about Fred W. Coffing, whose inventions of lifting, pulling and hoisting machinery has cut many man-hours from installation and repair time; has ceased the individual labors of installers-repairmen, and generally saved time, labor, expense and tempers.

The Coffing Hoist Co., Danville, Ill., where the time-saving, labor-saving, production cost-cutting, machinery is produced, has enjoyed business relations with most telephones and power and light companies for more than two decades

now. In fact, telephone companies were the first real customers of Fred Coffing and Coffing Hoists.

It all started back in 1924, when Fred was caught short in his garage without a hoist and he had to remove a motor from an old Model T. Necessity proved the mother of invention and Coffing fashioned a unique hoist out of an old automobile frame, a piece of roller chain from a chain driven truck, two hand forged steel hooks and a 12" reversible wrench.

The homemade hoist worked—worked better than any hoist then on the market. Coffing decided to manufacture his hoist, but found backers enthusiastic, helpful and not interested financially. Not to be thwarted—Fred turned his hands to many jobs to raise sufficient capital to produce his hoist.

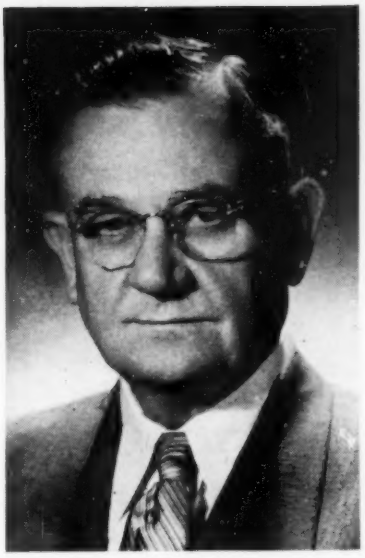
His search and efforts were rewarded after two years of struggle when he met R. R. Bookwalter, who backed his enthusiasm with cash. Coffing and Bookwalter, with two other employees, started the Coffing Hoist Co. and built a few of the revolutionary type hoists.

As the first few were completed, Coffing went around the country trying to sell the machine. Buyers watched demonstrations, approved, but found the ratchet chain hoist "a little too revolutionary" to take a chance.

It was at a sales demonstration for one of the large telephone companies that Coffing hit on the idea which is now a permanent part of the Coffing Hoist sales policy. At the conclusion of the demonstration the usual skepticism was present. To prove his point, Coffing offered this telephone company a 30-day free trial of the hoist. The company accepted and after the trial period ordered a sufficient number of the hoists to put Coffing Hoist in business.

From such a small sendoff, Coffing Hoist has grown and expanded until it stands among the leaders of the industrial machinery field. Fred Coffing is accepted as one of the outstanding authorities on leverage in the country. Coffing lifting, hoisting, pulling and binding machines are used extensively in every industry.

The Coffing rachet lever hoists, binders and pullers are some of the most used machines throughout the telephone, power and light industries. Their management has estimated that the puller alone has saved a sizeable amount in production costs and man-hours in the work of stretching telephone and power and light lines from pole to pole, and also in stretching guy wires. The ratchet-lever hoists are used by telephone company cable splicers and rapairmen for the dangerous and tedious tasks of keeping overhead cables in position while work is being done, or for the job of hoisting the heavy cable into the proper position on the pole.



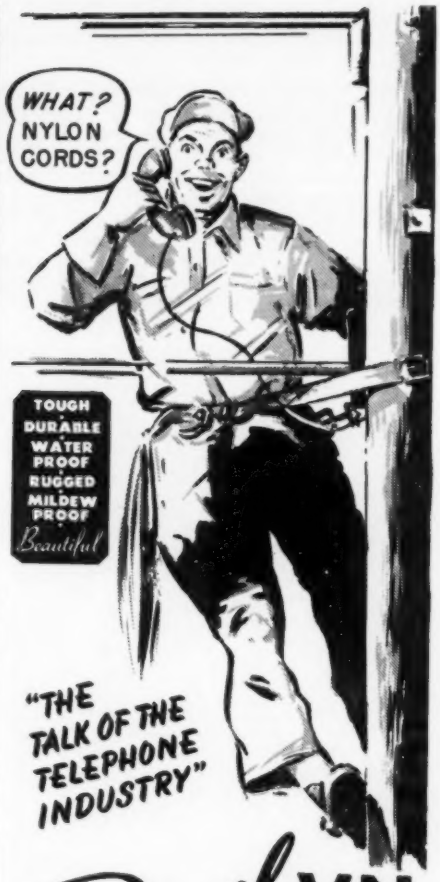
FRED W. COFFING

The Coffing safety load binder is also used extensively by these companies in the transportation of poles. Poles are loaded efficiently, quickly and without danger of slipping from their binding with this machine. One man can operate these binders with ease in no time—where many accidents and much loss of temper prevailed by the use of the old type of eccentric binders.

Raytheon Advances Eibye To New Sales Post

John J. Eibye has been appointed manager of magnetic component sales, according to announcement made by James J. Tynan, sales manager of Equipment Sales Division, Raytheon Manufacturing Co., Waltham, Mass. Mr. Eibye will be responsible for the promotion and sale of voltage stabilizers, transformers and the Raytheon rectichargers and rectifilters.

Mr. Eibye has been with Raytheon since 1942. Up until the end of the last year, he was in charge of certain magnetron production in the Power Tube Division and he then directed the promotion and sale of the Raytheon recticharger and rectifilter. Previously he was in the Boston sales office of Remington Rand.



Runzel V.N. SERIES

NYLON SWITCHBOARD CORDS

Our announcement concerning RUNZEL "VN" SERIES NYLON CORDS has startled the Telephone industry. Everywhere, in every department of the service RUNZEL "VN" SERIES NYLON CORDS are the talk of the industry.

You'll like the features these cords contribute to your service. They're tough . . . durable . . . will withstand rugged handling . . . they're immune to moisture and mildew and what is more . . . RUNZEL "VN" SERIES NYLON CORDS have a distinctive appearance of quality.

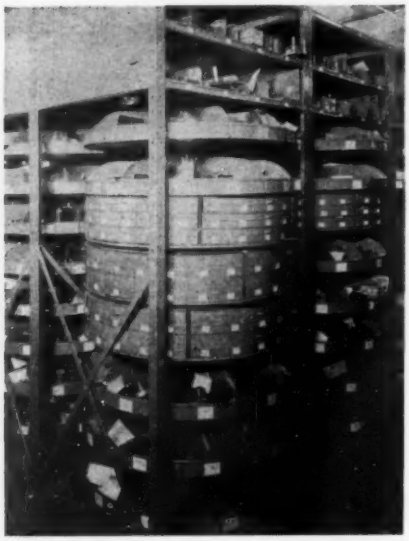
You are invited to write for samples.

RUNZEL
Cord and Wire Co.
4723 W. MONTROSE AVE.
CHICAGO 41, ILL.

ADDITIONAL Information on New Products or Service and Supplies of any Advertiser listed in this section may be promptly obtained by filling out the handy request for more information reproduced on the opposite page. All items are numbered. Check number of items on which more information is desired and send to Telephone Engineer Publications. Kindly mention Telephone Engineer Publications when contacting advertiser direct.

the New Products Showcase

New Products & Supplies of Practical Interest



Rotabins result in savings in floor space up to 50%, cause shorter trips by tool crib personnel, hence faster service at the window. Dark corners are eliminated. Every item in a Rotabin is easily and quickly located as every square foot has a front position when needed.

Every tray rotates on ball-thrust bearings; will not sag or break when fully or unequally loaded. As Rotabins stand independently on a solid, heavy steel base installation requires but little time.—Check New Product 142.

ADVERTISING, Directories—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal.—[ADV 4]

ADVERTISING, selling—telephone directories—L. M. Berry & Co., Hulman Bldg., Dayton, Ohio.—[ADV. 5]

ANCHORS. Albion Malleable Iron Company, Albion, Mich.—[ADV. 6]

ANCHORS—James R. Kearney Corp., 4224 Clayton Ave., St. Louis, Mo.—[ADV. 7]

BATTERIES, Dry Cell—National Carbon Co., Inc., 30 E. 42nd Street, New York 17, N. Y.—[ADV. 8]

BATTERIES, Dry Cell—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—[ADV. 9]

BATTERY—WATER UNITS (Demineralizers For Tap Water—A. E. Tomkins & Co., 1828 Columbia Rd. N.W., Washington 9, D. C.—[ADV. 10]

BELTS — CLIMBERS — COMPLETE LINEMENS' EQUIPMENT. W. H. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.—[ADV. 11]

BELTS—CLIMBERS—Miller Equipment Co., Inc., Franklin, Pa.—[ADV. 12]

BOOTHS—Churchill Cabinet Co., 2119 Churchill St., Chicago 47, Ill.—[ADV. 13]

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard.—The Ansonia Electrical Co., Ansonia, Conn.—[ADV. 14]

CABLE SPINNING—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—[ADV. 15]

CABLE TERMINALS—Channell Splicing Machine, 2415 Roanoke Rd., San Marino, Calif.—[ADV. 16]

CORDS, Instrument and Operators—Commermercial Cord & Supply Co., 26 Main St., Clifton Springs, N. Y.—[ADV. 17]

CORDS, Switchboard & Telephone—Runzei Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 18]

ENGINEERING, Construction—Neale Construction Company, 432 Crane St., Topeka, Kans.—[ADV. 19]

FIRE POTS, FURNACES, Etc.—Clayton & Lambert Mfg. Co., 1701 Dixie Highway, Louisville 10, Ky.—[ADV. 20]

FIRE POTS, FURNACES, Etc.—The Turner Brass Company, 823 Park Ave., Sycamore, Ill.—[ADV. 21]

INSULATORS, Porcelain—Porcelain Products, Inc., Box 300, Findlay, Ohio.—[ADV. 22]

MAILING SERVICE FOR MANUFACTURERS—We will address and mail your direct-mail sales pieces to every telephone company in the United States. Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago 26, Ill.

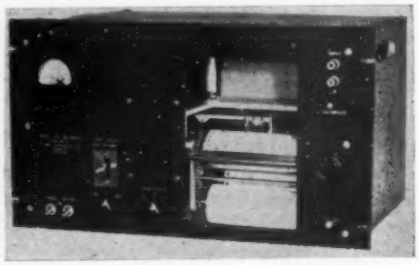
"PHONE EASE"—Holds phone in position for carrying on conversation and frees hands. Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago 26, Ill.

PIPE PUSHERS—Giant Manufacturing Co., South 6th St. at 12th Ave., Council Bluffs, Iowa.—[ADV. 23]

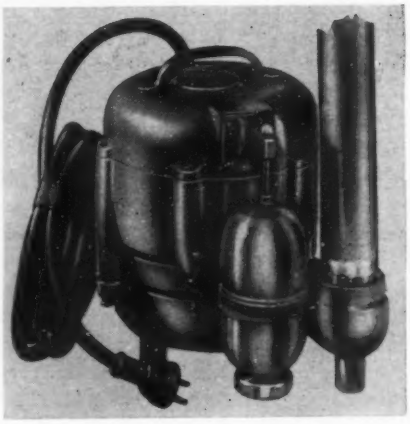
PIPE PUSHERS—Greenlee Tool Co., 2136 12th St., Rockford, Ill.—[ADV. 24]

POLES, So. Yellow Pine—Colfax Lumber & Creosoting Co., Inc., Colfax, La.—[ADV. 25]

POLES, So. Yellow Pine—Koppers Company, Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—[ADV. 26]



Model FRA direct ink-recording instrument automatically plots a curve of any slowly or rapidly changing measurable quantity that can be converted into a DC or AC voltage. The measuring ranges can be selected and recorded either on a logarithmic or linear scale. Typical applications include: acoustics; electro-acoustics; noise and vibration; loudness; strain and pressure, and field strength.—Check New Product 143.



New "Enpo" Submersible Utility Pump was designed to run under water and eliminate the possibility of pumps becoming inoperative due to flooding out. The 1/4 HP, single phase, 115 volt, 60 cycle motor is hermetically sealed and is constructed of non-corrosive materials. The pump is produced with either manual or automatic float control. It is the centrifugal type and delivers 3000 gallons per hour. The pump is non-clogging, life-time lubricated, light weight, easily portable and features quiet operation.—Check New Product 144.

POLES, Northern White Cedar—Page & Hill Co., 1017 Plymouth Bldg., Minneapolis. Minn.—[ADV. 27]

POLES, Southern Yellow Pine—Taylor-Colquitt Company, 290 E. Main St., Spartanburg, S. C.—[ADV. 28]

POLES, Southern Yellow Pine—Texas Creosoting Co., Orange Texas.—[ADV. 29]

POLE HOLE DIGGERS—For derrick mounted trucks. Tel-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.—[ADV. 30]

POLES, Contract Inspection & Preservative Ground Line Treatment—Osmose Wood Preserving Co., 1443 Bailey Ave., Buffalo 12, N. Y.—[ADV. 31]

PRESERVATIVES, Wood—Barrett Div., Allied Chemical & Dye Corp., 40 Rector St., New York.—[ADV. 32]

PRESERVATIVES, Wood—Koppers Co., Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—[ADV. 33]

PROTECTIVE EQUIPMENT—Cook Electric Company, 2700 Southport Ave., Chicago 14, Illinois.—[ADV. 34]

PROTECTIVE EQUIPMENT—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—[ADV. 35]

RATCHET LEVER HOISTS—Coffing Hoist Co., 800 Walters St., Danville 5, Ill.—[ADV. 36]

REBUILT TELEPHONE EQUIPMENT—USED EQUIPMENT BOUGHT AND SOLD—Independent Telephone Repair Co., 1432 W. 15th St., Chicago 8, Ill.—[ADV. 37]

nd BUYERS' DIRECTORY

Manufacturers and Suppliers Serving the $8,000,000,000 Telephone Industry

REBUILT TELEPHONE & SWITCHBOARDS—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.—[ADV. 38]

RECTIFIERS—Raytheon Manufacturing Co., Commercial Products Division, Waltham 54, Mass.—[ADV. 39]

RINGING MACHINES—Holtzer-Cabot Electric Co., 125 Amory St., Boston 19, Mass.—[ADV. 40]

SOLDERING IRONS, Electric—Vulcan Electric Company, 88-90 Holten St., Danvers, Mass.—[ADV. 41]

SWITCHBOARDS, TELEPHONES, Etc.—Automatic Electric Company, 1033 Van Buren St., Chicago 7, Ill.—[ADV. 42]

SWITCHBOARDS, TELEPHONES, Etc.—Kellogg Switchboard & Supply Company, 6650 Cicero, Chicago 38, Ill.—[ADV. 43]

SWITCHBOARDS, TELEPHONES, Etc.—Leich Sales Corp., 427 W. Randolph St., Chicago, Ill.—[ADV. 44]

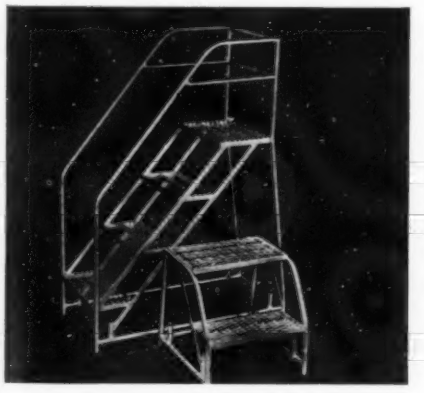
SWITCHBOARDS, TELEPHONES, Etc.—The North Electric Manufacturing Company, Galion, Ohio.—[ADV. 45]

SWITCHBOARDS, TELEPHONES, Etc.—Stromberg-Carlson Company, 100 Carlson Road, Rochester, N. Y.—[ADV. 46]

TIME RECORDERS—Calculagraph Co., 306 Co., 306 Sussex St., Harrison, N. J.—[ADV. 47]

TREE EXPERTS—Davey Tree Expert Co., Kent, Ohio.—[ADV. 48]

TREE TRIMMERS—Seymour Smith & Son, Inc., Oakville, Conn.—[ADV. 49]



New mobile Step Ladder incorporates an automatic safety feature, durability and low cost. The automatic safety feature is effective and simple, for although the ladder is mounted on ball bearing casters for easy movement, the moment a person steps on the ladder, automatically the rubber tipped legs come in contact with the floor, preventing rolling action and the possibility of a fall. The ladders are made in standard sizes from 1 to 6 steps out of aluminum finished steel. The frame is ¾" steel tubing and the step plates of non-slip reinforced expanded steel are electrically welded in one sturdy unit. —Check New Product 146.

TRUCK BODIES—Artisan Products, Inc., 3540 West 140th St., Cleveland 11, Ohio—[ADV 50]

TRUCK BODIES—Highway Trailer Co., Edgerton, Wisc.—[ADV. 51]

TRUCK BODIES AND EQUIPMENT—McCabe Powers Auto Body Co., 5900 N. Broadway, St. Louis 15, Mo.—[ADV. 52]

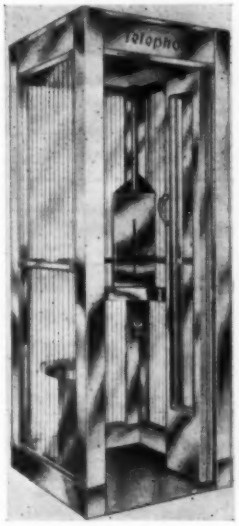
WIRE, Insulated—DATED DROP WIRE—Neoprene or Weatherproof—Alphaduct Wire & Cable Co., Milltown, N. J.—[ADV. 54]

WIRE, Insulated Drop, Genuine Ironite—Paragon Electric Co., Two Rivers, Wis.—[ADV. 53]

WIRE, Insulated Drop and Bronze—Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.—[ADV. 55]

WIRE, Drop Wire (Iron, Bronze & Copperweld)—General Insulated Wire Co., Providence, R. I.—[ADV. 56]

IF YOU DO not see a listing in these columns of products or services you are interested in write "Buyers' Directory", 7720 Sheridan Road, Chicago 26, Illinois, for such information. It will be furnished quickly and without charge.



Most recent Sherron telephone booth development is a sparkling, stainless steel and wire glass model. Although the new booth is intended for outdoor locations, since it will not rot, rust or decay, the booth has everything to recommend it for the swankiest of indoor sites. — Check New Product 147.

WIRE, Insulated Drop, HT Bronze, Paraprene or Braid Insulation—Paragon Electric Co., Two Rivers, Wis.—[ADV. 57]

WIRE, TELEPHONE, for all inside and outside uses—The Whitney Blake Co., Box K, Hamden, Conn.—[ADV. 58]

WIRE CUTTERS—H. K. Porter, Inc., 74 Foley, Somerville, Mass.—[ADV. 59]

SEND IN THIS COUPON FOR MORE INFORMATION

Telephone Engineer Publishing Corp.
7720 N. Sheridan Road
Chicago 26, Illinois

Please forward complete information on the following products and services described in the July, 1949 issue of TELEPHONE ENGINEER AND MANAGEMENT. (Check information desired.)

NEW PRODUCTS

NP 142..... NP 143..... NP 144..... NP 145..... NP 146..... NP 147.....

SERVICES AND SUPPLIES

ADV. 4.....	ADV. 5.....	ADV. 5.....	ADV. 7.....	ADV. 8.....	ADV. 9.....
ADV. 10.....	ADV. 11.....	ADV. 12.....	ADV. 13.....	ADV. 14.....	ADV. 15.....
ADV. 16.....	ADV. 17.....	ADV. 18.....	ADV. 19.....	ADV. 20.....	ADV. 21.....
ADV. 22.....	ADV. 23.....	ADV. 24.....	ADV. 25.....	ADV. 26.....	ADV. 27.....
ADV. 28.....	ADV. 29.....	ADV. 30.....	ADV. 31.....	ADV. 32.....	ADV. 33.....
ADV. 34.....	ADV. 35.....	ADV. 36.....	ADV. 37.....	ADV. 38.....	ADV. 39.....
ADV. 40.....	ADV. 41.....	ADV. 42.....	ADV. 43.....	ADV. 44.....	ADV. 45.....
ADV. 46.....	ADV. 47.....	ADV. 48.....	ADV. 49.....	ADV. 50.....	ADV. 51.....
ADV. 52.....	ADV. 53.....	ADV. 54.....	ADV. 55.....	ADV. 56.....	ADV. 57.....
		ADV. 58.....	ADV. 59.....		

Name ..... Title .....

Company .....

Street Address .....

Town ..... Zone ..... State .....

THE CLEARING HOUSE

For the Convenience of readers of Telephone Engineer

SPECIALISTS ○ Our 43rd Year

TELEPHONE FORMS

PRINTING • PLANOGRAPHING

YOUR ORDERS RECEIVE PROMPT ATTENTION

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CYRUS G. HILL
ENGINEERS
ALLEN K. HAMILTON
Plant—Traffic—Commercial
Valuations and Original Cost
231 S. LaSalle St., Chicago 4

RECONDITIONED EQUIPMENT
Kellogg No. 801 Steel Wall Sets, Common Battery, Any type Ringers, at $8.00.
Kellogg No. 118 Stands, No. 600 type Ringer Boxes, complete desk sets, Common Batt., at $8.00.
Kellogg No. 118 or 84 type stands, complete at $5.00.
Brand New, W. E. No. 47 Plugs, at 50c each.
INDEPENDENT TELEPHONE REPAIR CO.
1432 West Fifteenth St. Chicago 8, Ill.

Chemical Dehydrators
Automatically controlled, using flake calcium chloride for preventing dampness and condensation in automatic totally enclosed telephone exchanges.
The H. J. Kaufman Co.
13215 Roselawn Ave., Detroit 4, Mich.

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
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CHICAGO
Appraisals—Original Cost Studies
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APPRAISALS—COSTS—PLANT
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Tree Trimming Tools and Supplies for Line Clearance
ask for catalog No. 30
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Detroit 2, Mich.

Cedar Poles
THE MAC GILLIS & GIBBS CO.
1615 E. Royall Place, Milwaukee 2, Wis.
★ ★
Northern White and Western Red Cedar
Creosote and Penta Treatments

CLASSIFIED ADVERTISMENTS

Wanted To Buy

WANTED TO BUY: 2-positions Automatic Electric Company's manual common battery switchboard. 2 panel per position basis. Can use with or without multiple. 15 universal cord pairs desired. Write or wire Equipment Superintendent, Southern Continental Telephone Co., Cookeville, Tennessee.

For Sale

CABLE RINGS
GALVANIZED COPPERWELD
BRONZE
100,000 New National rings in original packages. Sizes from 1½" to 3"x¼" to 7/16". Current price, less 15%, F.O.B. destination. Write Mutual Telephone Company, Attention Purchasing Agent, Box 2200, Honolulu, T. H.

FOR SALE: Diverter Pole Generator, Motor 3 phase, 220 V., 60 cycle. Generator, 33 V., 50A, 1200 RPM. Harrisonburg Telephone Co., Harrisonburg, Va.

FOR SALE: Magneto Wallsets, Compact type, serviceable condition. Inquire. The Lincoln Telephone and Telegraph Co., Lincoln, Lincoln 1, Nebraska.

FOR SALE: SWITCHBOARD. 4-position multiple Stromberg-Carlson with 300 common-battery and 20 magneto lines. Equipped with 30 inter-exchange trunk circuits and harmonic ringing keys. Battery, main frame, and ringer converters included. Available immediately. Full particulars will be sent on application to York Telephone & Telegraph Co., 31 S. Beaver St., York, Pa.

FOR SALE: Several rows factory rebuilt drops and jacks for #105 Stromberg Carlson magneto switchboard. Price $15.00 per row of 5. Write H. H. Harris, Box 477, Yale, Oklahoma.

FOR SALE: Exchange in eastern South Dakota. Good condition. $17,000 annual income. Priced for quick sale. Have other business interest. Write for full information. Box No. 8635 c/o Telephone Engineer.

Position Wanted

POSITION WANTED: Outside plant man experienced; nine years with large company; served as lineman, installer, repairman and maintenance man; presently located in Minnesota; wants to locate in Mountain States. Write Box No. 8636 c/o Telephone Engineer.

For Sale

FOR SALE: Telephone exchange (Magneto) in Minnesota. 210 company owned stations. Includes one story brick building with pleasant living quarters and brick building adjoining for garage and warehouse. Good expansion possibilities. Good toll revenue. To sell for 2½ times gross. Write Box No. 8637 c/o Telephone Engineer.

Big Bargain
DROPWIRE $14. per thousand.
Save $6 or $60 or $600
Bell Spec. 6738 Standard.
#18 parallel Copperweld.
Same strength and Conductivity as #17 bronze. Write Box No. 8623 c/o Telephone Engineer.

FOR SALE: 90 station magneto exchange and modern 7-room house near Wichita, Kansas. System is in fair shape with country lines partly metallic. Will sell complete or without house. Must sell. Any reasonable offer considered. Write or call Mrs. Hanlon, Viola Telephone Company, Viola, Kansas.

Classified Ad Rates

RATES ARE REASONABLE . . . 15 cents a word, except for Situation Wanted Ads, which are only 5 cents a word, infiguring cost of ads, count each word of address in number of words used. All ads payable in advance. Minimum charge $2.00. Special rates for Display type ads on request. FORTNIGHTLY TELEPHONE ENGINEER is published on the 1st of each month. Ads should reach us by 15th of preceding month.

Wanted To Buy

WANTED TO BUY: Used one position magneto or common battery switchboard equipped with 75 to 100 drops and jacks 8 or 10 cord pairs. Must be in good condition. Address Adrian Public Service Co., Adrian, Georgia, W. L. Green.

WANTED TO BUY: 100-line magneto switchboard in good condition. Address J. T. Shelton, manager, Stag Canon Telephone Company, Dawson, New Mexico.

WANTED TO BUY: 300 to 600 station exchange. Give full particulars. Address J. Jacobson, 3420 S. 84th Street, West Allis, Wisconsin.

For Sale

FOR SALE: Two 20-drop Leich wall switchboards; three cord circuits with answering cord. One board in use about six months, the other a year; both replaced with large board. Address Lone Grove Telephone Company, Lone Grove, Oklahoma.

FOR SALE: 220-station magneto exchange in growing town in good farming community on edge of government game refuge. WE board, modern dwelling, good rates! no switchers. Gross income, 1948, $8100; will sell for 1½ times 1948 gross. Must sell because of ill health. Address James B. Corum, Upham Telephone and Electric Company, Upham, North Dakota, or phone No. 40.

FOR SALE: 550-station magneto and C B exchange in Orting, Washington, town of 1400 population, 18 miles from Tacoma, in beautiful and fertile Puyallup Valley. Center of largest daffodil bulb farms in the world; site of several large industries. Ten toll circuits; good monthly phone rates. Priced to sell at $50,000. Address A. R. Gately, Box 364, Orting, Washington.

FOR SALE: 160-station exchange with possibilities of expansion to 300 or 400. Good toll center, good local rates. Office located in semi-modern 5-room house. This is a pleasant village in a prosperous farming community. Town 30 miles from Indianapolis, Indiana. Must sell because of poor health. Priced to sell at $10,000 cash. Address R. C. Rawley, Sheridan, Indiana.

FOR SALE: 180-station magneto telephone exchange with excellent expansion possibilities. 5 toll circuits, good toll business. Price $12,000; terms. Address J. G. Bacon, Box 13, Sanford, Michigan.

CABLE-SPLICERS' WIPING CLOTHS

WIPING THE VERTICAL JOINT

Showing the up-right cloth in action.

Formed-flexible finishing cloths (Patented); Flat finishing cloths; Catch cloths; Crotch cloths and Up-right joint catch cloths. Made of world-prize HERRINGBONE TICKING or Imported English MOLESKIN. If your jobber cannot supply you write us for literature and prices.

GEO. E. WILLIAMS, *Mfr.*

3035 ALDRICH AVENUE, MINNEAPOLIS 8, MINN.

UNDERGROUND AND DISTRIBUTION OR OVERHEAD DROP-WIRE

2 conductor #17 solid copper parallel, 2640 feet per reel made by General Cable Co. to the stringent specifications of the United States Signal Corps and meeting all physical and electrical requirements, a $22.00 value at **$9.95 per thousand** feet in lots of 10 or more reels. $11.00 per 1000 ft. in lots of 1 to 9 reels. F.O.B. Chicago, Ill.

COLEMAN CABLE & WIRE CORPORATION

4515 W. Addison St., Chicago 41, Illinois

For Sale

FOR SALE: 90-station magneto exchange, 13 lots, and 5-room modern house, located in a small community in Oklahoma. Residence rates $2.25; business rates $4.00, plus tax. Waiting list; large amount of supplies on hand. Will sell for one year's gross. Please do not write. Phone Burbank (Oklahoma) 49, or come to see the exchange.

Help Wanted

HELP WANTED: Maintenance man for two exchanges totaling 275 stations. Can live in five room house at main office serving 199 stations. Address Chapman Telephone Association, Chapman, Neb.

HELP WANTED: Reliable couple to manage 275-station exchange located in southwestern Montana. Modern living quarters; position permanent. State salary desired, experience, age and furnish references. Write H. D. McKee, Box 242, Ennis, Montana.

BUCKEYE

For a Quarter of a Century Rebuilders of the Independents' Telephone Equipment.

FOR RECONDITIONED TELEPHONE AND SWITCHBOARD EQUIPMENT

Depend on

Buckeye Telephone & Supply Co.

COLUMBUS 6, OHIO

Positions Wanted

POSITION WANTED: As cableman or combination man. 42 years of age, married, 20 years' experience in the telephone field. Dependable, neat, accurate. Agreeable salary expected. Address C. H. Stevens, 631 South Pine Street, Ocala, Florida.

POSITION WANTED: Man with five years' telephone experience and Lincoln Engineering School training would like to locate on the West Coast. 28 years of age, married; willing to work for livable wage. Wife can serve as part-time operator. References furnished upon request. Address Carl Higgins, P. O. Box 214, Lenapah, Okla.

POSITION WANTED: To operate telephone exchange in a climate that is neither extremely cold nor very hot. Have had 20 years' experience, can furnish good references; husband has 10 years' experience and can also help. Only two in family. Please give all information—whether house, lights and water are furnished, salary, and size of switchboard. Address Mrs. Viola M. Ford, Richmond, Va.

ACORN LONG LIFE DROP WIRE SPANS TODAY'S SHORTAGES

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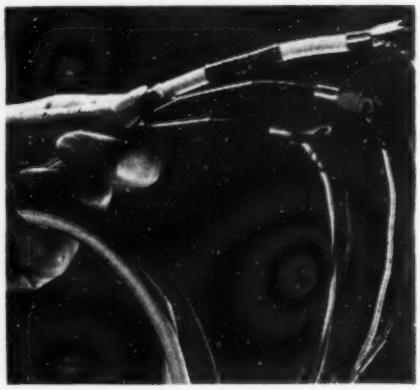
INSULATED WIRE

ACORN INSULATED WIRE CO., INC.
36 Freeman St., Pawtucket, R. I.

Runzel Introduces New Nylon Switchboard Cord

The Runzel Cord & Wire Co., 4723 W. Montrose Ave., Chicago 41, Ill., has announced production of the RUNZEL "VN" Series NYLON Switchboard Cords.

The Runzel Company lists four service features of the "VN" Series of Nylon Switchboard Cords and in addition, call attention to the beauty



Runzel Cord & Wire Co. introduces "VN" Series Nylon switchboard cords

and refinement of these cords as a natural result of the use of Nylon thread in their manufacture. These features are:

(1) Nylon thread used for the covering provides a superior, tough outer braid capable of hard service.

(2) Nylon is highly resistant to moisture and acids.

(3) Where mildew is likely to occur, Nylon cords are immune to its destructive action.

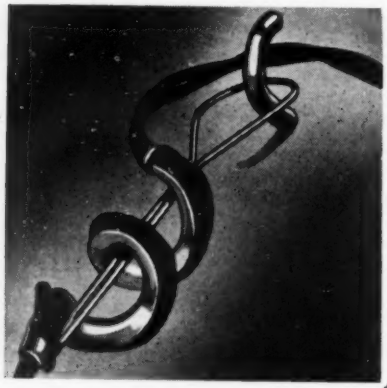
(4) The unusual tensile strength of Nylon provides a ruggedness far beyond other types of Switchboard Cords.

Officials of the Runzel Cord & Wire Company state that the result of their announcement thru the Trade Journals indicates a wide-spread acceptance of these cords by the Telephone Industry as a whole.

The Runzel Cord & Wire Co. has prepared an attractive catalog sheet which provides complete information, including prices of the new switchboard cords. Copies may be obtained direct from the manufacturer.

Leeds & Northrup Celebrates 50th Birthday

To celebrate the beginning of its 50th anniversary, Leeds & Northrup Company recently played host to 3500 employes and their guests at a dinner, entertainment, and dance in Convention Hall.



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"Snub-R-Grips"

The new drop wire hook with the "friction spot" that provides maximum protection and is super easy to install.

Low priced and sure hold.

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LAWRENCEVILLE, ILLINOIS

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End objectionable noise interference due to transient and induced voltages, and provide additional lightning protection in bell circuits, with the Vincent Rare Gas Relay. Compact, non-mechanical, the Vincent Rare Gas Relay is easily inserted in the bell box, or at the ground connection or protector block on compact handsets, in series with each bell. It needs no further maintenance.

Since the resistance of the relay is practically infinity below 60 volts, its normal breakdown voltage, the line remains normally free from paths to ground. Ringing voltage of 85 volts ionizes the rare inert gases, is transmitted without difficulty.

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THE BACK OF THE BOOK

By JOHN G. REYNOLDS
Managing Editor

$363 Per American . . . If you are that vague, genderless being, the average American, with fractions of children, cars and coats, you will pay $363 for being governed this year.

Of that amount you will pay $270 to the federal government and $93 to state and local units. And if you're normal as well as average, you'll sigh for the good old days. Back in 1915 your federal tax bill was tiny indeed—only $6.94. The first world war sent it soaring to $51.82. Even during the golden year of 1928 it was a modest $30.32, and during the first year of the New Deal it was $40.95. Last year the figure was $268. These statistics were gathered by U. S. News and World Report.

Even when adjusted for the lesser purchasing power of the dollar, the cost of government was multiplied fantastically. It is fair to ask whether the average citizen who now pays 10 or 20 or 30 times as much for his government is getting 10 or 20 or 30 times as much for his money.

One Washington observer after noting that the functions of government have increased almost unbelievably and that the executive branch added 11,453 payrollers in April alone, bringing the civilian total to 2,122,710 asked—"Will the tide recede or will the $270 that seems pretty big when compared to the $6.94 of 1915 keep growing? ? ? ?"

• • •

Answer Phones For Pay . . . The telephone shrilled in the brain specialists empty office on a hot Sunday afternoon—and a swift chain of events began.

The surgeon was yachting off the swank Connecticut shore. But a few hours later, thanks to the bell, a girl and some seagoing police, he was performing a delicate emergency operation.

That was just another incident among hundreds which pack drama into the switchboards of telephone answering services. When the doctor did not answer his telephone, an operator for the service to which he was a subscriber took the call and got the details about a severely injured accident victim. She had the police dispatch a patrol boat to bring him ashore.

The telephone answering business is a 20th century plant, which sprouted more than 25 years ago and bloomed voluminously with the depression. Small businesses found the service cheaper than an office girl.

Today it is a national industry with country-wide ramifications and big business clients. Telephone answering businesses in 80 large cities of the United States are linked in the associated telephone exchange founded in 1942.

The bulk of New York's business is done by two companies giving 24 hour service. One is Telephone Exchange and Doctors Exchange (single ownership) operating 19 offices in Manhattan and the Bronx. The other is Telanserphone Inc., operating 15 offices in Manhattan and others in four outside cities.

The biggest answering service offices have long lines of switchboards manned by operators drilled to swift efficient and all-out service. Their switchboards are linked to the nearest telephone central office by off-premises extensions.

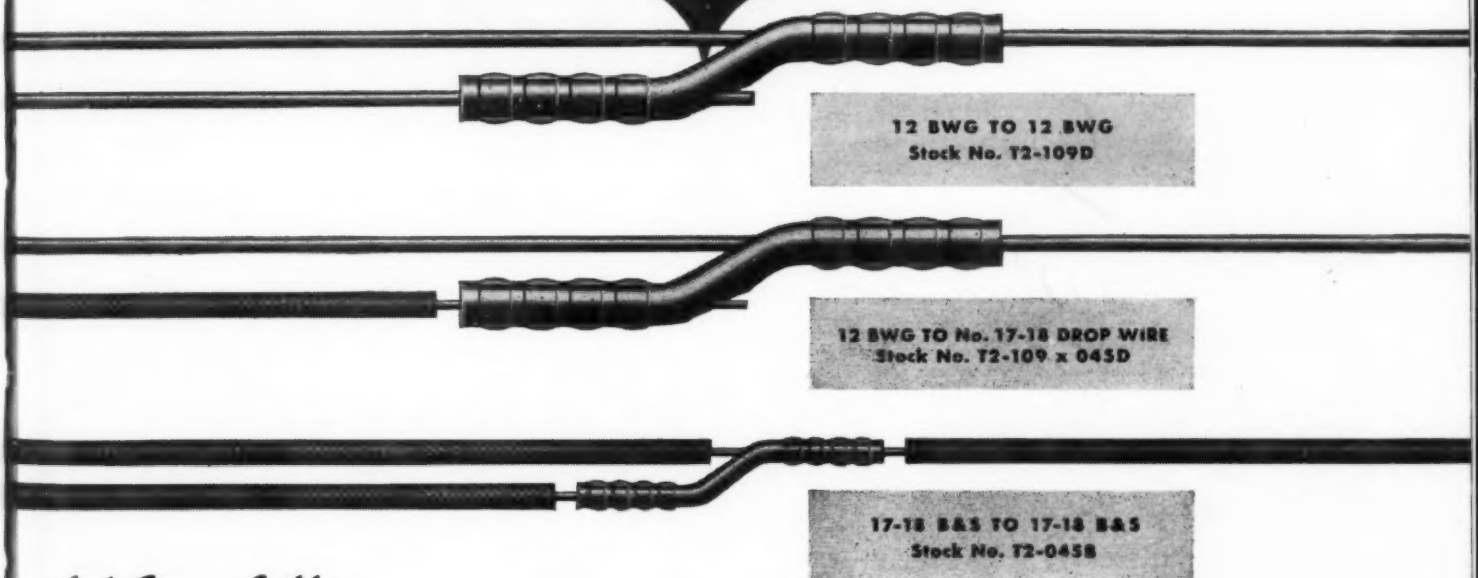
When the client's telephone rings, his light automatically flashes on the telephone answering switchboard. If he does not answer the third ring, the operator does.

Nicotap

THE FAST, DEPENDABLE Nicopress WAY OF MAKING LINE AND DROP WIRE TAPS

THE NICO-TAP IS SPLIT

THERE IS NO NEED OF CUTTING THE LINE TO MAKE THE CONNECTION—JUST SLIP THE SLEEVE OVER THE LINE WIRE AND COMPRESS



12 BWG TO 12 BWG
Stock No. T2-109D

12 BWG TO No. 17-18 DROP WIRE
Stock No. T2-109 x 045D

17-18 B&S TO 17-18 B&S
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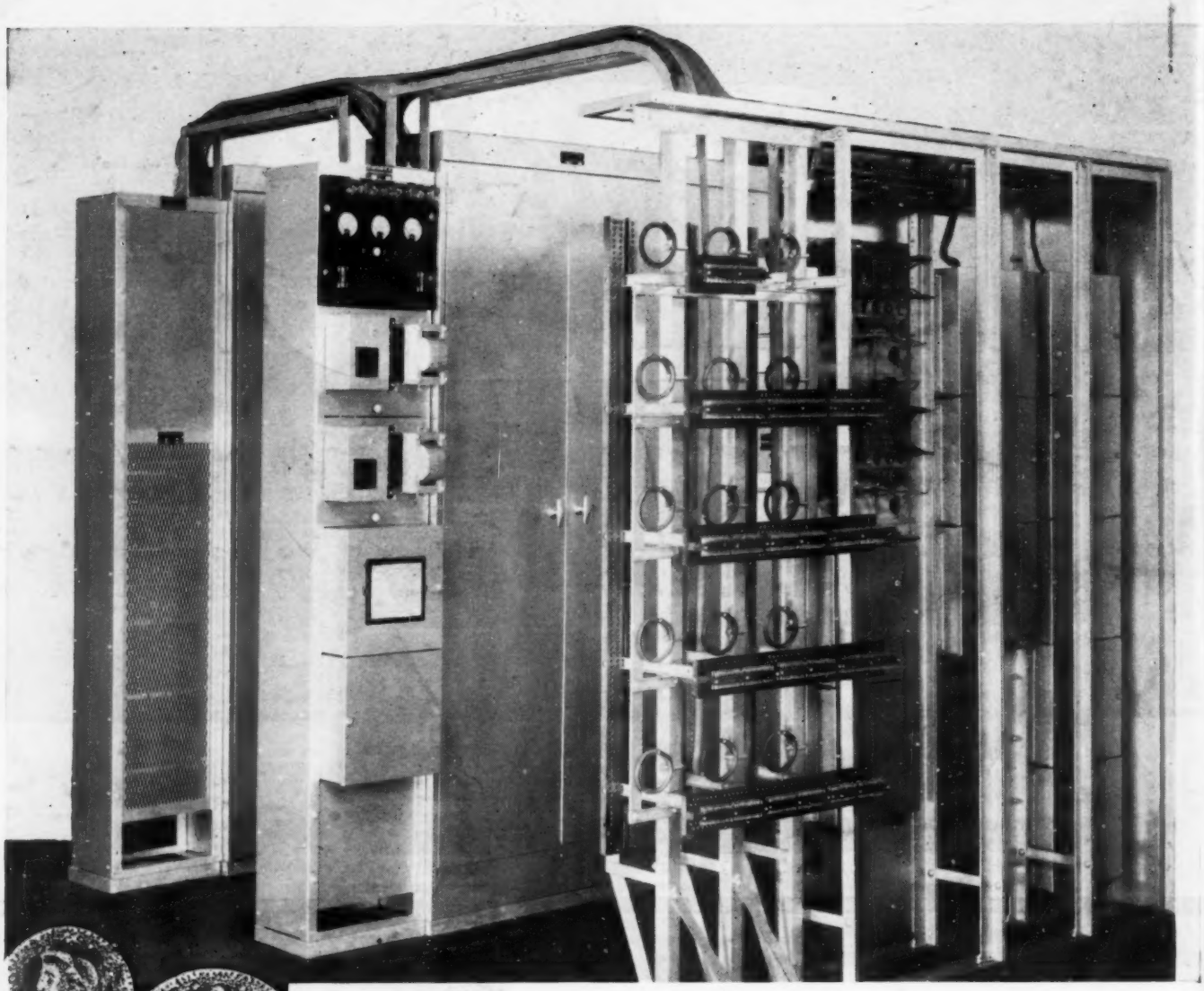

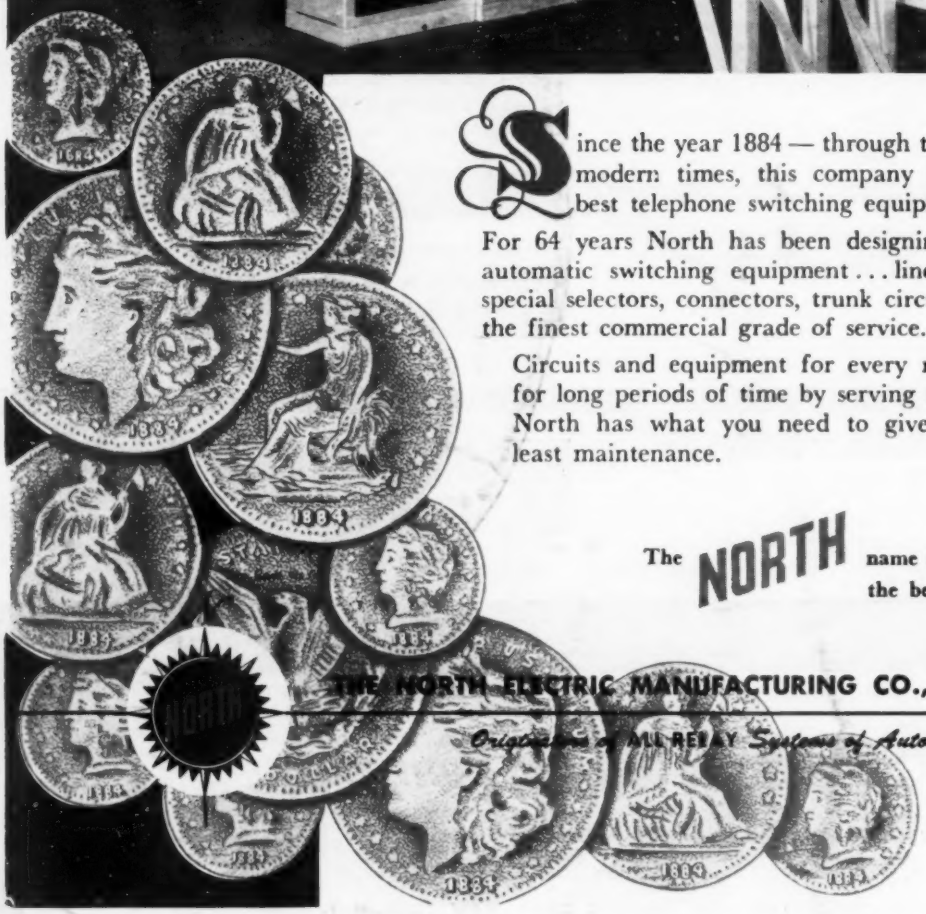

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